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# **AIRFIX**

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for modellers



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# AIRFIX

## magazine

for modellers

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A popular article in this volume was the story of the 1934 London to Melbourne Air Race (November 1981 issue). A group in New Zealand has re-created nearly all the contestants in 1:72 scale and you can read more about them (and see more pictures) on page 596. Some 18 starters and three non-starters are shown in this group photo. What a nice collection! (John Coom).

### On the cover:

All the drama of the war in the air in Europe, 1944, is captured in this fine action painting, which shows the colourfully marked 'Tangerine' of 364 FS, 357 FG, 8th USAF, flying as part of the P-51D Mustang escort for a daylight raid by B-17s. Adventurous modellers could try applying this striking decoration scheme to a 1:72 scale model (courtesy Roy Williams).

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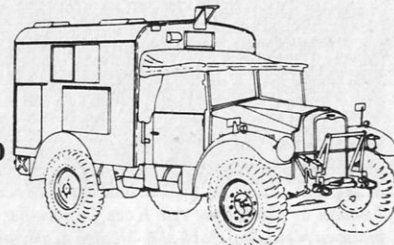
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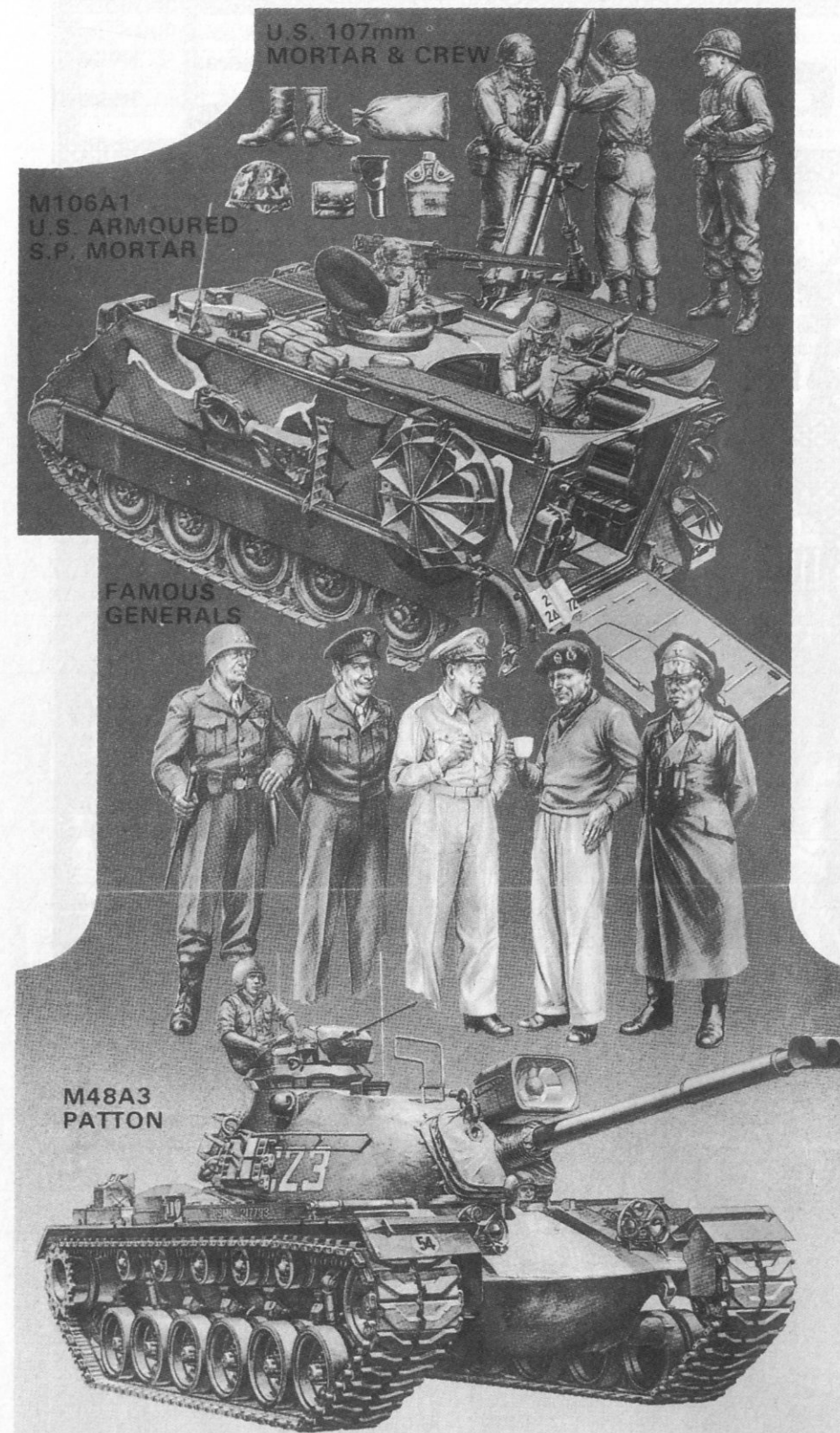


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## Airfix News

Own up anyone who hasn't watched the television series 'Dukes of Hazzard.' If you haven't, you must be one of the very few people not to have sat through this particular programme, groaning or chuckling at the endless file of cars, zooming off one after another on amazingly long chases. Some children love it however, and if your child is one of them then Airfix have come up with several new items to catch his/her eye. Cooter's Cruiser is a snap kit that takes about five minutes to assemble so even the most faint hearted of modellers can have a go. It comes moulded in plastic with a bright blue body finish (needs no painting) and grey and black accessories. As a Chevy Pick Up it certainly represents an important aspect of American transport but with its cheerful decals and association with the Dukes it is really just a fun piece. Even brighter than the Cruiser, is a new snap together kit of Boss Hogg's Hauler — a Dodge van. Emblazoned on the sides, the enormous face of Boss Hogg himself stares out at you, smiling slyly, as he dreams of all those dollars that he is going to make. The main bodywork of the kit is white with grey upholstery and black plastic wheels. Again it needs no painting and can be assembled in a matter of minutes. Other vehicles in the series to watch out for are Duke's Digger, General Lee's Charger and Cooter's Tow Truck which comes complete with working winch and rooflights.

Another new release, but this time from the Monster range series 4, is a model of that old prehistoric favourite, the Brontosaurus. Airfix haven't actually stated what scale they are using but the models can all be used in conjunction with one another without appearing out of place. This model measures 357mm in length and approximately 220mm in height. Parts are large, easy to handle and suitable for most children to assemble after the age of six. Although Airfix suggest painting it in a sort of brownish yellow colour, children will probably have more fun by letting their imaginations run wild by thinking up as terrifying a colour scheme as possible.

### Empire Strikes Back

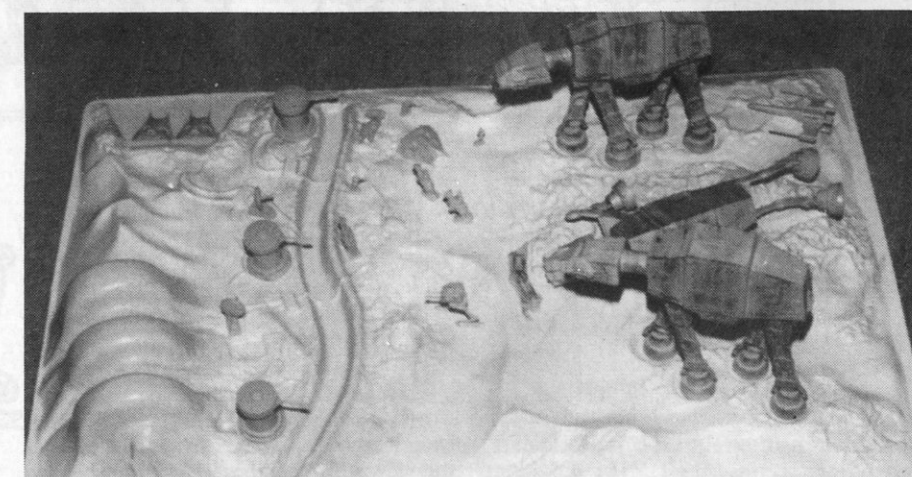
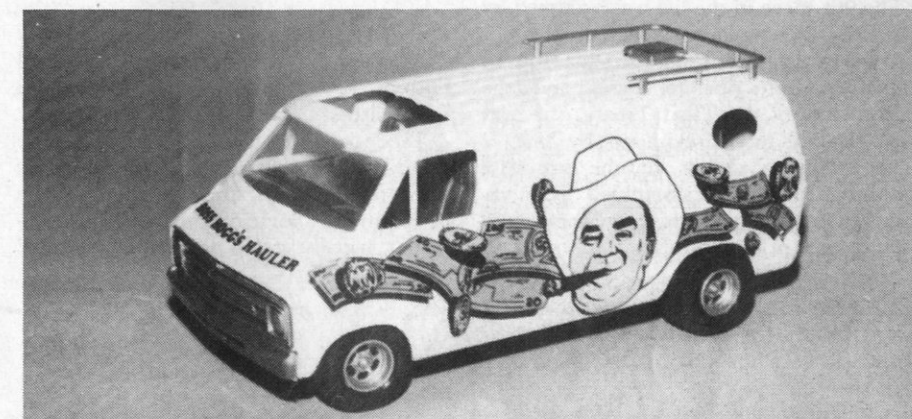
Three further Airfix range releases are all based on the *Star Wars* sequel, *The Empire Strikes Back*, and they depict scenes from the film in two cases. First of these, a Snapfix kit, is titled 'Battle on Ice Planet Hoth' and is easy-to-build kit comprising a vac-form base depicting the icy terrain and three AT-AT Walkers, one X-wing Fighter, one Scout Walker, three Snowspeeders, and nearly 50 figures. The terrain base is 12in x 18in in area. All the models within this kit are moulded in the grey moon-like colours of the original and all snap together without glue to make up an interesting diorama packed with action. The second

Snapfix kit is titled 'Encounter with Yoda on Dagobah' and a 10in diameter model of the home of Yoda the Jedi Master is featured. This has a lift-off top so that the figures of Yoda and Luke Skywalker can be placed inside in a detailed setting. Yoda, in his home on bog planet Dagobah, is teaching Luke about the Dagobah way of life.

The third kit is a large scale 8in tall replica of the AT-AT (All Terrain Armoured Transport) from the film. With 66 parts it makes a fully detailed model with moveable control room and moveable legs so that various poses may be arranged. The bulk and power of this dragon like machine are well captured and the parts are moulded in the light grey of the original.

All three kits are in Series 10.

Below: Hogg's Hauler and Cooter's Cruiser are two Airfix snap-together kits from the Dukes of Hazzard series. Bottom: 'Battle on Ice Planet Hoth', a Snapfix from the Empire Strikes Back series.



## Editor's Notebook

Time flies past so swiftly it is difficult to realise we are at the end of Volume 23 already. So this issue we've provided an index for the past year (thanks to swift work by Elizabeth Elliot), and you'll find this on the centre pages. With Volume 24 we hope to resume the next batch of instalments on Mulberry Harbour (several parts to come yet!) and we have lined up a new and original series on SEAC by Geoff Thomas which aviation enthusiasts will not want to miss. Make sure you join us next month. Younger readers may like to know that the Airfix Modellers' Club has been reorganised, and details are given on page 598. More news on this later. Space is tight this month, and as you'll see there are several new kits to be described on the rest of this page. Chris Ellis.



# The Prussian Army

## Hussar Uniform Details by Don Fosten

Before the 1806 campaign began there were nine Hussar Regiments in the Prussian Army. These were as follows:

1st Regiment — von Gettkandt.  
2nd Regiment — von Rudorff.  
3rd Regiment — von Pletz.  
4th Regiment — Prinz von Württemberg.  
5th Regiment — von Prittwitz.  
6th Regiment — von Schimmelfennig von der Oeye.  
7th Regiment — von Köhler.  
8th Regiment — von Blücher.\*  
10th Regiment — von Usedom.

\*The 9th space in the list was occupied by the Bosniaken — later 'Towarczys'.

This gave a total of some 96 squadrons in the field but, due to losses and the agreements of the Tilsit Treaty, the arm was reduced to six regiments by 1806/7. The following details of the pre-1806 uniforms have been assembled from various sources. In parentheses are the regulation colours of the uniform.

### 1st Regiment

(Dark green, red facings, white cord and buttons, red and white girdle).

Buttoned overalls. White fur for pelisses. Officers wore the flügelmütze with a 'wing', covered in silver cloth. The officers frequently wore the 'pikesche', the German version of the English undress coat which, for this regiment, was dark blue with green collar and pointed cuffs and had silver lace. The officers also wore red gala breeches. Trumpeters dressed as the troopers but had a frame of fringed braid around the breast frogging.

### 2nd Regiment

(Red, dark blue facings, white cord and buttons, dark blue pelisse, dark blue and white girdle).

Troopers wore the 'tschako' and had blue overalls with white metal buttons. Officers wore the fur cap, the 'tschako' or the 'flügelmütze'. Some officers wore the cocked hat, usually with a dark blue 'pikesche'

which had green facings. They also had blue gala breeches. One source states the officers had gold instead of the expected silver laced jackets.

### 3rd Regiment

(Dark blue faced yellow, yellow cord and buttons, yellow and white girdle).

All ranks wore the flügelmütze, the officers' pattern having a wing, covered in gold cloth. The breeches were blue but blue overalls with yellow buttons were also worn. The pelisses had white fur. Some officers reported wearing the 'tschako' and others the cocked hat with a gold lace star loop and a white over black feather. Trumpeters dressed as the troopers with a white braid frame around the frogging, trimmed with a blue and white fringe. The trumpeters also had an extra white braid inside the cord edge of the collar and cuffs.

### 4th Regiment

(Light blue faced red, white cord and buttons, yellow and white girdles).

Troopers and the trumpeters wore the flügelmütze. The pelisses had white fur. The cord decoration was, according to one source, mixed blue and white. Officers wore either the 'tschako' or the cocked hat and affected scarlet or yellow breeches decorated with white silk. Their 'pikesche' was dark blue with a pale blue collar and cuffs and had silver lace. The Trumpeters had a flat braid frame around the frogging and blue and white braid on the collar and cuffs.

### 5th Regiment

(Black faced red, white cord and buttons, red and white girdles).

The 'tschako' or the 'glügelmütze' were worn by separate squadrons. One source says 'the uniform was entirely black with white cord and buttons'. The pelisses had black fur. There was a white cloth cut-out skull, with crossed bones beneath, on the headdress. The NCOs and Trumpeters did not wear the skull ornament. Officers wore the 'tschako' and had fringed lace. Their pelisses had red silk linings. They wore either scarlet, black or white breeches. The officers 'pikesche' was black with scarlet collar and cuffs and silver lace. Trumpeters were dressed like the troopers but had red and white mixed cords and a braid border to the frogging edged with red fringe.

### 6th Regiment

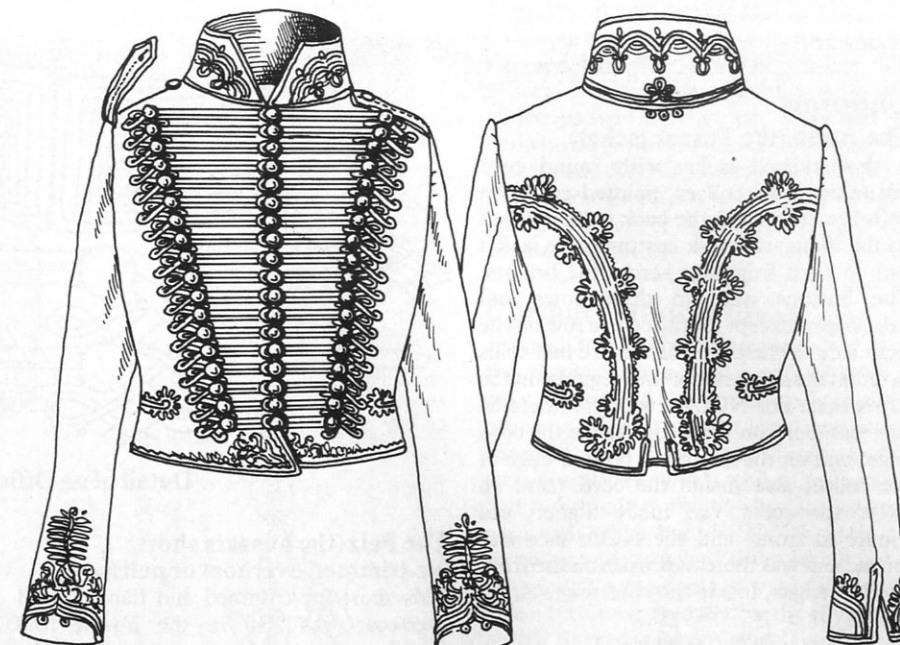
(Dark chestnut brown faced yellow, yellow cord and buttons and yellow and white girdles).

The officers wore either the 'tschako' or the 'flügelmütze' with a wing covered with gold cloth. Their 'tschakos' were also provided with wings covered with gold cloth, which is unusual for Prussian cavalry. The pelisses were provided with white fur. The breeches were dark blue. The overalls were also dark blue with pipings of diverse colours probably identifying the squadrons. The officers wore a dark blue 'pikesche' with chestnut-brown collar and cuffs and gold cords, but also wore chestnut-brown coats with yellow facings and gold lace. They wore flame-red or pale blue gala breeches decorated with yellow silk. The Trumpeters were dressed the same as the troopers but with a mixed yellow and white braid border round the frogging and yellow and white cords.

### 7th Regiment

(Lemon yellow faced light blue, white cord and buttons, light blue pelisses, light blue and white girdles).

The 'tschako' and the 'glügelmütze' were worn by different squadrons. Most wore the 'flügelmütze'. The officers' caps had a silver cloth wing. The overalls were pale blue 'pikesche' with yellow facings and silver lace. The officers wore the cocked hat or the 'tschako' with this coat. The officers gala breeches were lemon-yellow decorated with white silk or light blue decorated with silver lace. Trumpeters wore the 'flügelmütze' and a flat braid frame around the frogging. The cords were all white and pale blue.



An Officer's Atilla.

### 8th Regiment

(Dark crimson faced black, white cord and buttons, red and white girdles).

The 'flügelmütze' was worn by all squadrons. The officers' pattern had a wing, covered with silver cloth. The officers facings were velvet. They wore a blue 'pikesche' with amaranthe facings and silver lace. The troopers wore ecru or crimson or grey overalls. Trumpeters were dressed as the troopers but with amaranthe and white fringed frogging.

### 10th Regiment

(Dark blue faced straw yellow, white cord and buttons, crimson and blue girdles).

All squadrons wore the 'flügelmütze'. One account says the cord was red not white (maybe for a trumpeter). White breeches. White fur for pelisses. Grey or ecru overalls piped in diverse colours distinguishing the squadrons. Officers dressed in same colours as their men but with 'gold cord and buttons'. The trumpeters were dressed as the troopers but with red, white and blue cord and fringe.

### 'Bataillon von Bila' (Regiment Nr 11)

(Dark green faced red with yellow cord and buttons and red and white girdles).

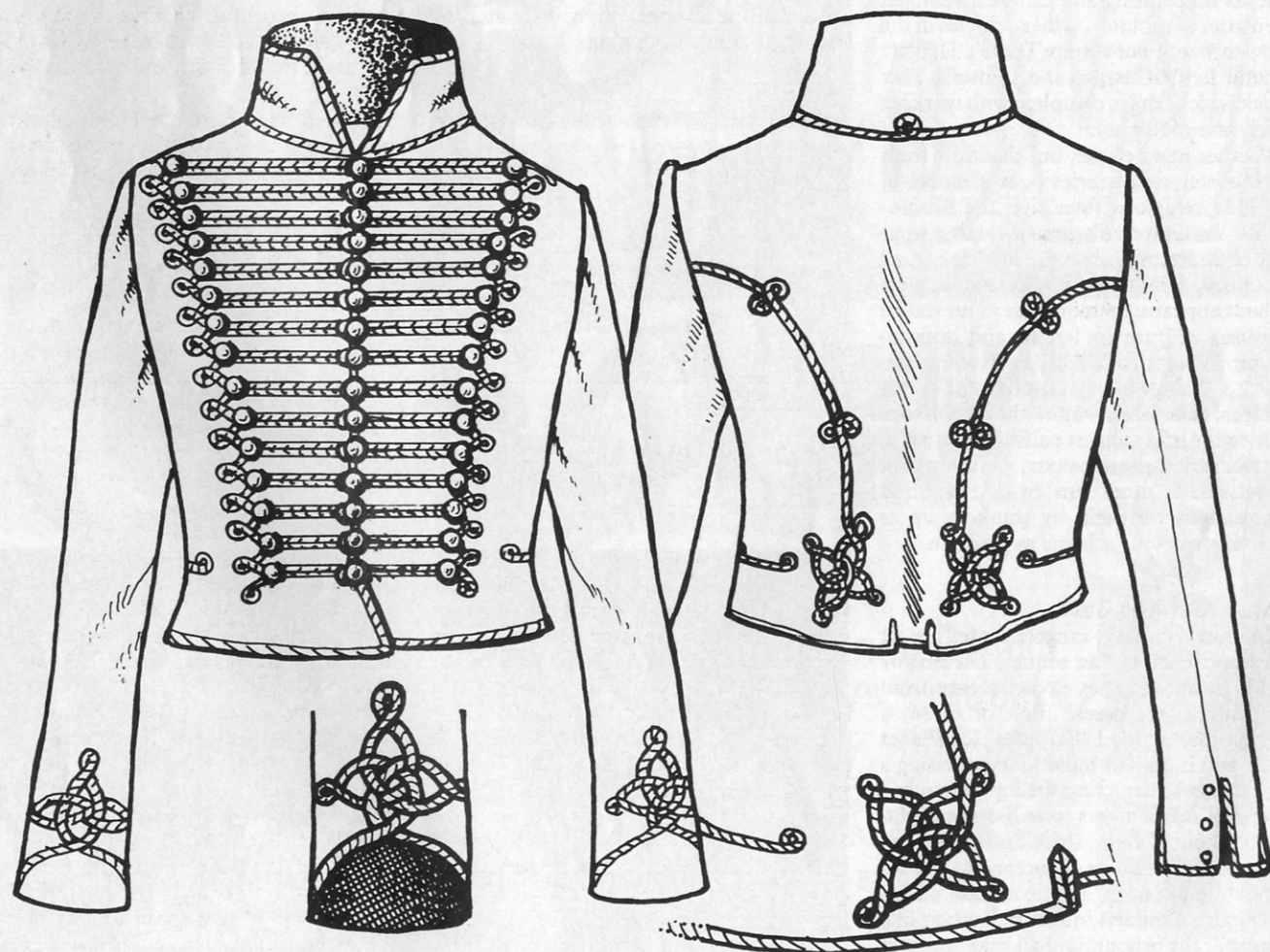
The regiment wore the 'tschako'. The facings were bright scarlet. The pelisses had black fur. The breeches were pale blue and pale blue overalls with buttons down the outsides of the legs were also worn. The officers wore a dark green 'pikesche' with red facings and gold lace. They wore this coat with the cocked hat and also wore pompadour pink or pale blue breeches with gold decorations for gala days. The Trumpeters wore the 'flügelmütze' and a yellow atilla and dark green breeches or overalls. Their frogging and cord was mixed red and white. In November 1806 an independent unit known as the *Husaren-Regiment-von-Berlin* existed. It wore tall fur caps with white feathers and cap lines. Their atilla and breeches were scarlet with white cord and buttons and the pelisse was brown with

white fur. They wore ecru overalls with white buttons and their shabraques were brown with red teeth and white pipings. The officers had brown fox fur on their pelisses. At this period the officers usually had pelisses trimmed with expensive furs. Sometimes the throat of a red fox, silver fox or wolf. In regiments where the fur is given as black the officers usually had the same except in the 5th and 10th where they had white fox throat fur. NCOs had red fox fur in the 2nd, 3rd and 4th but the NCOs of the 5th, 6th, 7th, 8th, 10th and 11th had black fur.

At the end of the 1806 campaign six newly constituted hussar regiments made the establishment. They were as follows: Leib-Husaren-Regiment. Brandenburg-Husaren-Regiment Nr 1. Brandenburg-Husaren-Regiment Nr 2. Pommersches-Husaren-Regiment. Oberschlesisches-Husaren-Regiment. Neiderschlesisches-Husaren-Regiment.

The new regiments were of four squadrons except the 'Leib-Regiment' which had eight. In December 1808, this regiment was split into two and became the 1st and 2nd Leib-Regiments each of four squadrons. In the same month the Upper and Lower Silesian Regiments were amalgamated but soon a second Silesian Regiment was reformed from volunteer independent hussar bands in the area. The 2nd Brandenburg Regiment was disbanded in 1809. Some four hundred of its wilder young NCOs and troopers, led by Ferdinand von Schill had tried to raise Northern Germany against the French. The premature uprising was put down by Dutch and Danish Cavalry in the French service, von Schill was executed and the regiment subsequently removed from the list, a lancer regiment being raised in its stead.

In 1811, the instruction unit, the 'Norman-Husar-Eskadron' was formed from cadres from all the regiments. It proved successful but was later embodied in the 'Leichte-Garde-Kavalerie-Regiment' and in March 1815, the hussar squadron was



A Trooper's Atilla.

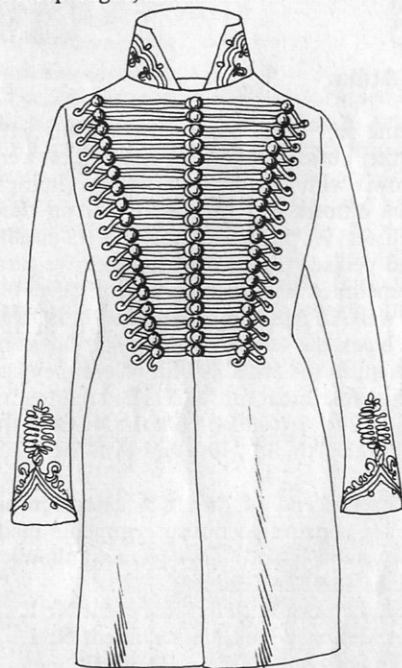


upgraded to become the 'Garde-Husaren-Regiment'.

## Uniforms

### The Atila (the hussar jacket)

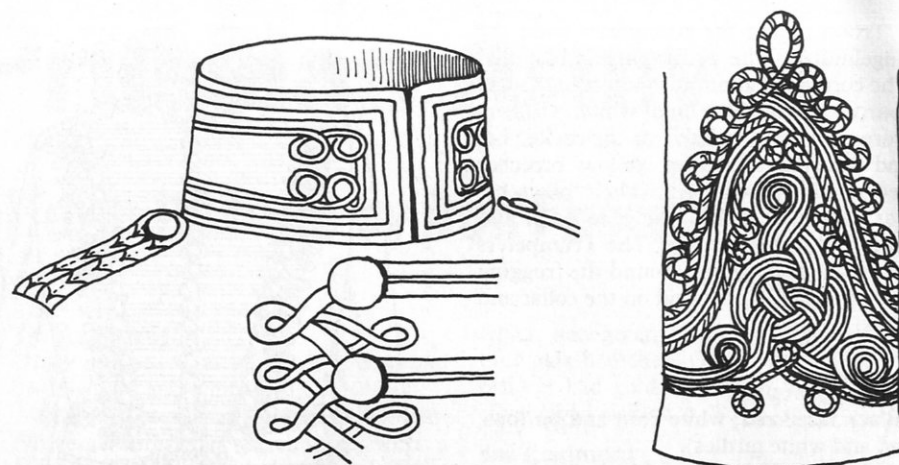
A short-skirted jacket with round cord trimming to its collars, pointed cuffs, on both breasts and up the back seams. Based on the Hungarian folk costume, the jacket had 15 cord froggings across the breasts. The buttons were in three rows and ball-shaped except for the centre row on the right side of the coat which were half-balls to retain the loop ends of the frogging on the left breast. For NCOs a wide flat metallic lace was worn on the cuffs, inside the cord edge, and on the front and bottom edge of the collar, also inside the cord trim. In 1814, the collar was made higher, cut square in front, and the NCOs lace was moved and was thereafter worn on the front and top edges, inside the cord trim.



An Officer's Pikesche.

The officers' pattern jacket was the same basic shape but had 18 froggings across the breasts, elaborate cord decoration on the collar and cuffs and up the back seams, tracing braid loops inside the outer ends of the frogs and decorated pockets in the sides. The officers' jackets were of better quality cloth, had gold or silver cord where the men had yellow or white and similarly gilded or silvered buttons. On the shoulders their jackets had broad straps in the jacket colour, fastened by buttons near the collar. These straps were piped red around the outer edges and had a strip of silver, black striped lace, inside the piping. The straps of officers of the 1st Leib-Regiment were white and for the 2nd Regiment, red.

A new pattern officers' jacket authorised in March 1815, had a closed, square-fronted collar and was more elaborately decorated with intricate camelhair ornaments on the collars and cuffs, gold for the Guard Regt. The shoulder straps were finally abandoned in favour of silver, black decorated cords, double for the Lieutenants and four ply for the Captains. Field Officers had plaited cords.



Detail of an Officer's Atila 1815.

### The Pelz (the hussars short fur-trimmed overcoat or pelisse)

This short fur trimmed and flannel lined overcoat was also in the hussar folk tradition. It was the same length as the dolman and usually the same colour. It was either worn slung by cords from the left shoulder or worn over the jacket (unlike the French service where it was often worn instead of the jacket). For the NCOs and men it had a sheepskin collar, body trim and cuffs. It had the same colour cord and buttons as the jacket, and the same style. The lining was red silk for the officers. The fur trimming was black for the 'Normal-Eskadron' and the NCOs of all regiments but white for the troopers. In 1815, it was modified and the fur collar made higher and cut square in front to match the jacket pattern. Thereafter, it was made with black fur for the NCOs and troopers of the 2nd, 7th, 8th, 9th, 10th and 12th Regiments, but became white, even for NCOs, of the 3rd, 4th, 5th, 6th and 11th Regiments. The NCOs had gold or silver lace above the fur cuffs.

The officers' pattern was made of better quality cloth, was heavily frogged and corded with gold or silver and was trimmed with grey astrakhan. It had shoulder straps like the atilla. Its retaining cord was more elaborate with sliders and had heavy tasselled ends. The officers also had a new pattern coat in 1815 which was more expensively corded in front and up the back seams.

### The 'Tschako' (Shako)

The cavalry model shako had a cloth 'rose' cockade in the Prussian colours, with a central button and a tin or lace loop connecting it to the woollen black and white 'National' on the top front edge. For parade, and other ceremonial occasions it was fitted with cord cap lines in the colour of the regimental buttons, white and black for the NCOs and silver and black for the officers. The shako had a black leather chin strap replaced for campaign purposes with a strap covered with brass or white metal scales. The officers gilded or silvered chin chains were suspended from heraldic eagles on the sides of the cap. For parade the officers' caps were decorated with a rod mounted drooping white over black feather ornament, NCOs had a white feather plume

with a black tip and the troopers a white feather plume. The 'Leib-Regiment' and the 'Normal-Eskadron' had a fat 'flue brush' plume instead of the feathers but in similar colours. The former had a white cloth, later a metal skull with crossed bones on the front of their shakos and the 'Normal-Eskadron' had a brass star, silvered and with an enamelled centre for the officers. On active service the cap was usually covered in black waxed cloth.

### Mütze (The Field Cap)

For hussar regiments, the cap was grey with a red band and an upper piping in the colour of the dolman (after 1814). Officers' caps were fitted with a small black gutta-percha or leather peak.

### Trumpeters

Their distinctions were the 'schwalbnester' (literally 'swallows nests', meaning wings) which were in the same colour as the atilla and pelz and had bars of regimental cord coloured lace. The NCO Trumpeter ('Stabstrompeter') had NCOs lace on the collar and cuffs and similar lace on the wings. Trumpeters had red shako plumes, the NCOs with a white tip.

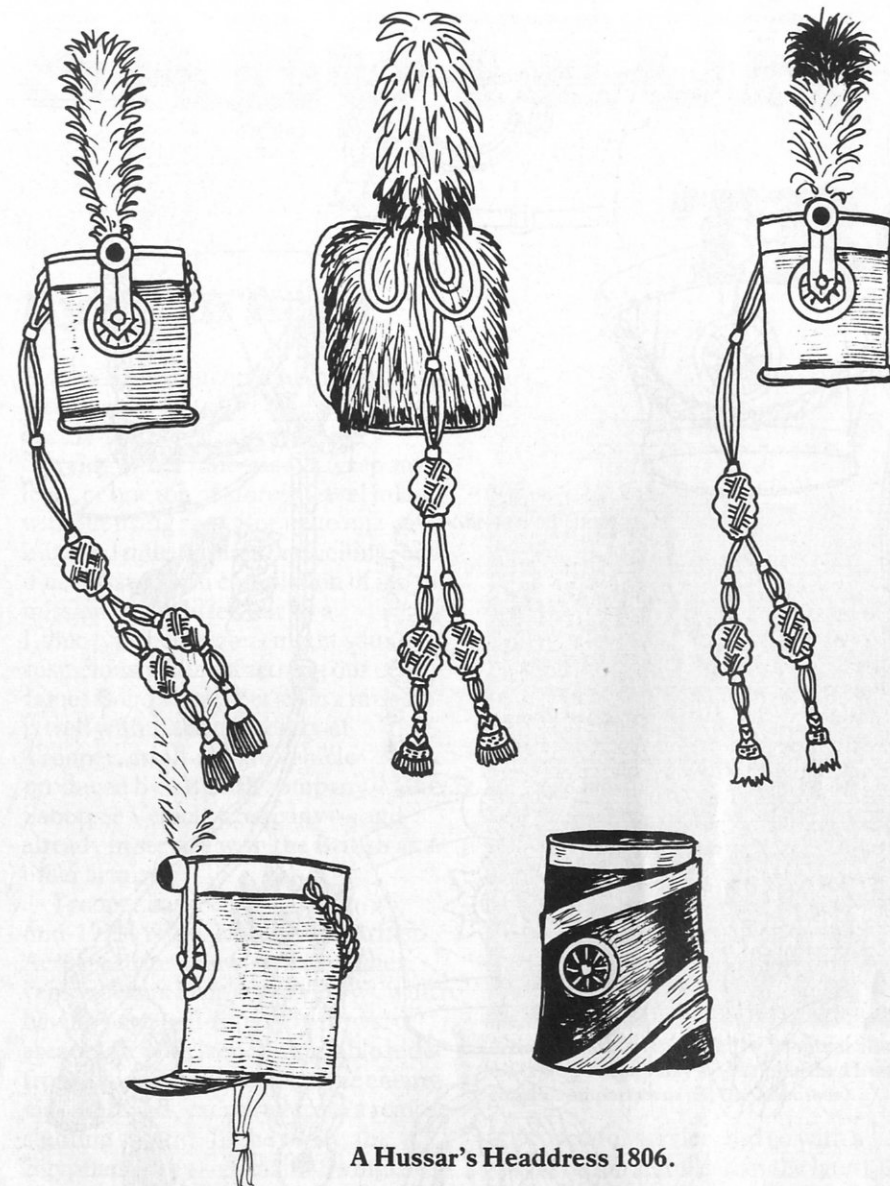
### Überhosen (Overalls)

These were the every day nether garments for hussars. They were dark grey with buttons down the outsides of the legs and had leather booting. The officers had a red piping along the outside edge.

### Mantel, Überrock etc (Overcoats and Frocks)

The grey cavalry pattern overcoat was worn by the NCOs and troopers. The collar was the colour of the atilla collar but had no cord edging. The shoulder straps were the colour of the body of the atilla. For the 1st and 2nd 'Leib-Regiments' the shoulder straps were white and red respectively until 1815, and thereafter were black. The 'Normal-Eskadron' had blue shoulder straps.

In 1808, the officers were generally wearing a grey überrock (frock) but this subsequently became a dark black/blue. Some officers also continued to use the old 'pikesche', with the laced fronts. The 'überrock' had a collar to match the troopers overcoats and the breasts of their



A Hussar's Headdress 1806.

coats were lined the same and could be thrown back to show triangular coloured parts. The piping on the pointed cuffs and the rear pocked flaps was yellow or white according to the regimental button colour. The field of the epaulettes worn with this coat was the atilla colour, the crescents in metal to match the buttons.

Officers' overcoats and cloaks had collars of the same colour as the troopers on the outside (when folded down) and the colour of the mens shoulder straps on the inside (visible when folded up). The edge of the collar when folded down was trimmed with regimental cord. The 1st 'Leib-Regiment' had the insides of the collars black velvet, the 2nd 'Leib-Regiment' had black velvet on both sides. In 1815, the Guard Regiment had blue on the inner side, as did the 3rd Regiment. The former had no cord trim.

### Galahosen (Tight breeches worn for gala occasions)

These were worn by officers only and were richly decorated with either yellow or white camelhair or gold or silver embroidery. They were generally in the atilla colour.

### Arms

The hussar was armed with an English style light cavalry sabre with a steel stirrup bow

guard and a black grip. The troopers had a black leather sword knot, the NCOs a black leather strap with a white and black woollen knot and the officers a silver and black knot. The scabbards were steel. Officers also carried the lions' head sabre. The troopers were also armed with carbines which were suspended on a swivel loop on the pouch belt. The best shots were armed with rifles. They also carried pistols.

### Pouch belt and pouches

The pouch belt was black leather and the troopers had plain black pouch lids. The officers had varnished leather belts with gilded pickers and chains. They had the Crown and Royal Cypher on the pouch lid. The 'Garde-Eskadron' had the brass star on the lid for all NCOs and troopers. Their officers had silver star pouch badges with enamelled centres.

### Further uniform detail

#### 1st and 2nd Leib-Regiments

Black atilla with red collar and cuffs. Black pelz. White cord and buttons, silver for the officers. NCOs had a flat lace frame round frogging. 1st Regt had white shoulder straps on atilla and pelz whilst the 2nd Regt had red shoulder straps. Hussar girdle red cord with white barrels. NCOs silver lace on collar and cuffs and silver frame round frogging. Trumpeters red wings with white lace. NCO trumpeters with silver lace wings. Shakos with skulls and bones on the fronts, silver for officers. Feather ornament white over black for officers. Troopers white 'flue-brush' ornament. NCO white plume with a black tip. Trumpeter red 'flue-brush' plume. NCO trumpeter with red plume but white tip. Black sabretache with a white border FWR cypher and crown.

The portrait of Graf de la Roche-Aynan as commander of the 2nd Regt indicates a red leather pouch belt faced with silver, a shako with a silver laced band around the top edge, a silver cord cockade, an upright white over black feather plume, silver eagles and chin chain. Black hussar breeches with elaborate silver ornaments on fronts and silver faced red swordbelt and slings.

L. Wolff's officer of the 1st Regt indicates the drooping white over black feather ornament, silver chin chain and silver and black cap lines. White, red piped shoulder strap with a silver, black striped strip along the centre on the pelisse. The pelisse has a deep red lining. Black pouch belt and sword slings. White gloves. Black overalls with red piping down the outside of the leg, white metal buttons Black sheepskin with red cloth edging. Red sabretache with silver cypher crown and edging. Steel scabbard.

A table for 1815

| Regiment  | Atila and Pelz | Atila Collar & Cuffs | Cord and buttons |
|-----------|----------------|----------------------|------------------|
| Guard     | Dark Blue      | Red                  | Yellow           |
| 1 Leib    | Black          | Red                  | White            |
| 2 Leib    | Black          | Red                  | White            |
| 3rd Regt  | Dark Blue      | Red                  | White            |
| 4th Regt  | Chestnut Brown | Yellow               | Yellow           |
| 5th Regt  | Dark Blue      | Dark Blue            | Yellow           |
| 6th Regt  | Green          | Red                  | Yellow           |
| 7th Regt  | Black          | Red                  | Yellow           |
| 8th Regt  | Dark Blue      | Light Blue           | White            |
| 9th Regt  | Light Blue     | Light Blue           | White            |
| 10th Regt | Green          | Light Blue           | Yellow           |
| 11th Regt | Green          | Red                  | White            |
| 12th Regt | Light Blue     | Light Blue           | White            |



Grey valise with red piping on the ends. Black bridle and headstall and black reins. Steel chain on head band.

### 1st Brandenburg-Husaren-Regiment, 1808 (after 1808 without number)

Blue atilla and pelz. Red collar and cuffs. White cord and buttons. Red cord girdle with white barrels. Red faced sabretache with border cypher and crown. Officers had gilded shako eagles and brass chin chain.

### 2nd Brandenburg-Husaren-Regiment

Regiment von Schill was disbanded in 1809. Dressed as the 1st Regiment but with yellow cord and buttons and red girdles with yellow barrels.

### Pommersches-Husaren-Regiment

The original prescribed uniform was worn only by officers and for a short period. It comprised a pale blue atilla and pelz with black facings and gold cord and buttons. The pelz fur was grey and the girdle silver cord with silver and black barrels. Red lining to pelisse. Pale blue shoulder straps on the atilla and pelz with red piping and silver black striped lace. Grey overalls with red piping and yellow buttons. The uniform which was later worn by all ranks was dark blue with dark blue facings and yellow cord and buttons, gold for the officers. The girdles were blue with yellow barrels. Trumpeters' wings were blue laced yellow.

### Oberschlesisches-Husaren-Regiment

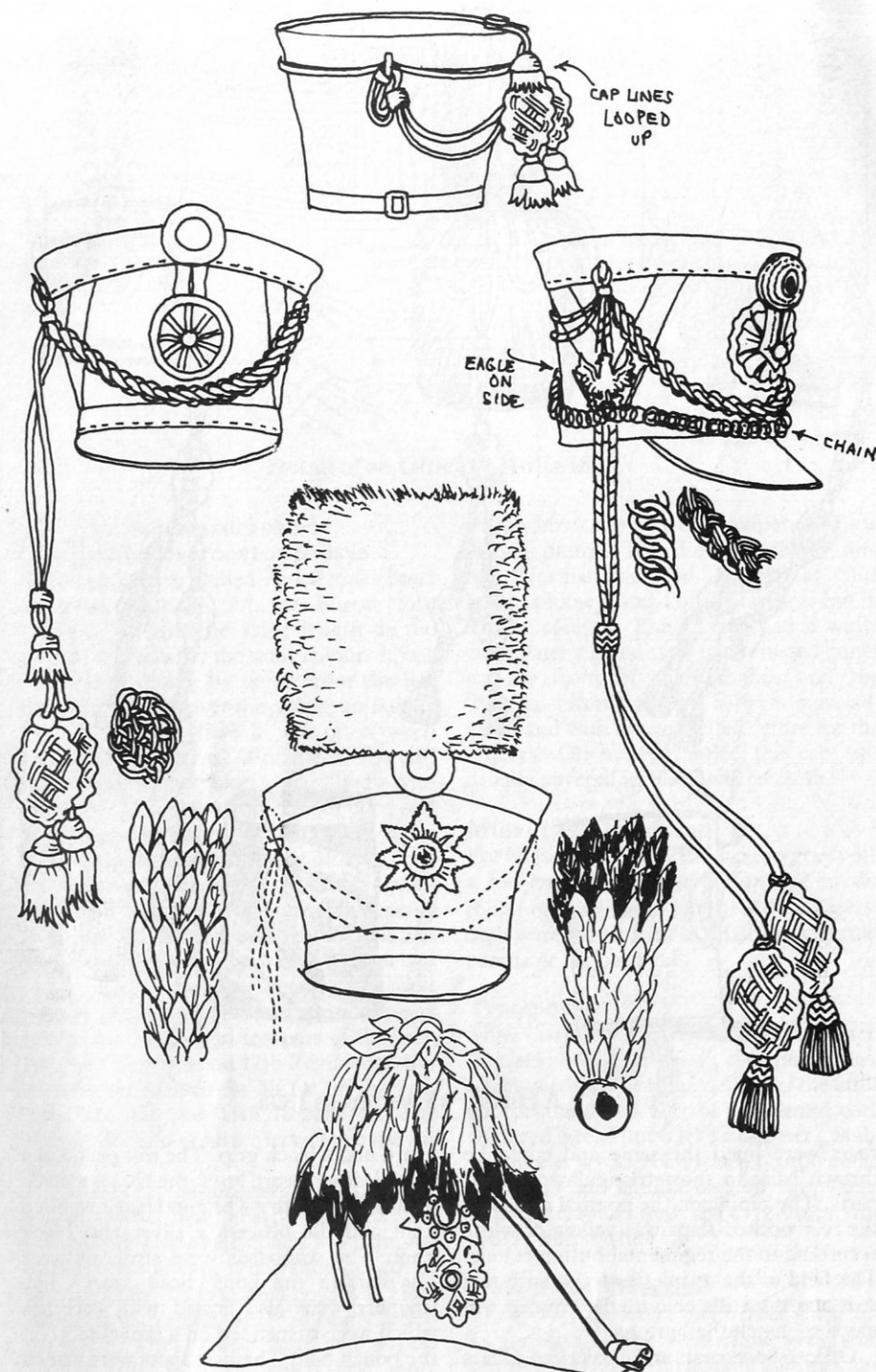
Brown atilla and pelz with yellow facings and yellow cord and buttons, gold for the officers. Yellow girdles with white knots, trumpeters' wings yellow with gold lace. The officers' gala breeches were pale blue.

### Niederschlesisches-Husaren-Regiment

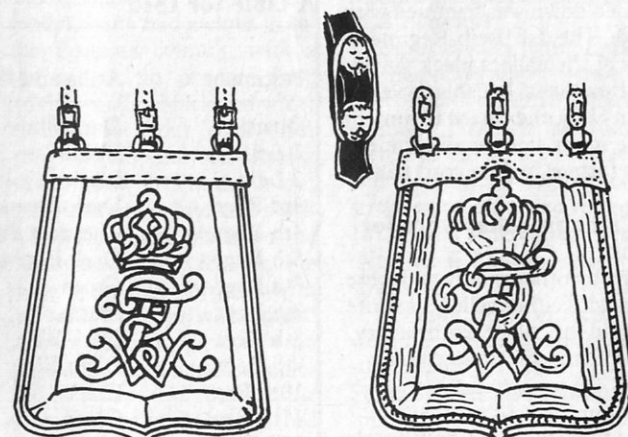
Green atilla with red facings and white cord and buttons. Green pelz with similar cord and buttons. Officers had green shoulder straps on the atilla and pelz with red piping and a silver black striped lace. Red girdle with white barrels. The trumpeters had red wings with white lace, silver for the NCOs.

### Garde-Husaren-Eskadron

Blue atilla and pelz. Red facings. Yellow cord and buttons. Red girdles with yellow knots. The shako plate was an eight pointed star, brass for the troopers and NCOs and silvered with an enamelled centre for the officers. Similar stars were carried on the pouches. The officers had a drooping white over black feather shako ornament, the NCOs and troopers had the fat flue brush type, the former white with a black tip, the latter all white and the Trumpeters a red plume. They had red wings with white lace, their NCOs had a white tip to the plume and had silver lace on the collar, cuffs and wings.



Headress 1808-1814.



NCO's and Troopers

Officers

# SABOTEUR TROOPER

By John Reed

A vehicle that can be launched from an assault craft up to 1½ miles off an enemy-held coast; swim ashore carrying either nine-men, a weapons load, or one ton of stores; travel inland without using roads for up to one hundred miles without refuelling, and if necessary upon completion of its mission be air-lifted out by a Lynx-type helicopter, might sound suspiciously like something out of a James Bond story. Yet such a mission is well within the capability of Trooper, an all-terrain vehicle produced by a British company — the Saboteur Vehicle Company — and already in service with the British and other armies.

Trooper has its origins in a mid-1970s requirement from British Aerospace for a new-style launcher vehicle for its Swingfire ATGW, which having been heli-lifted to a forward area could be driven to a suitable hide from which it could engage the enemy via command, exercised from a remote sighting system. In the event, the Egyptian Army — a major Swingfire user — opted for the more conventional Jeep as transport for its missiles, and the British Army was less than enthusiastic about the prospect of what might in some circumstances have been an expendable vehicle. Saboteur's designer and Managing Director, however, pressed ahead with an alternative version which incorporated many of the lessons learned the hard way during his own military service. An eight wheeled vehicle could launch itself across an obstacle whilst still held firm by its rear four wheels — a fact recognised by the Warsaw Pact countries in the design of much of their battlefield transport — but it was equally important to produce a vehicle which would have the inherent strength to enable it to spend around 95% of its working life 'in the rough', undertake a variety of roles from missile launcher to casualty evacuation, and yet remain light enough to be lifted by the Lynx.

The outcome was a series of vehicles which gradually developed as they were accepted for trials with the British Army, and when subsequently



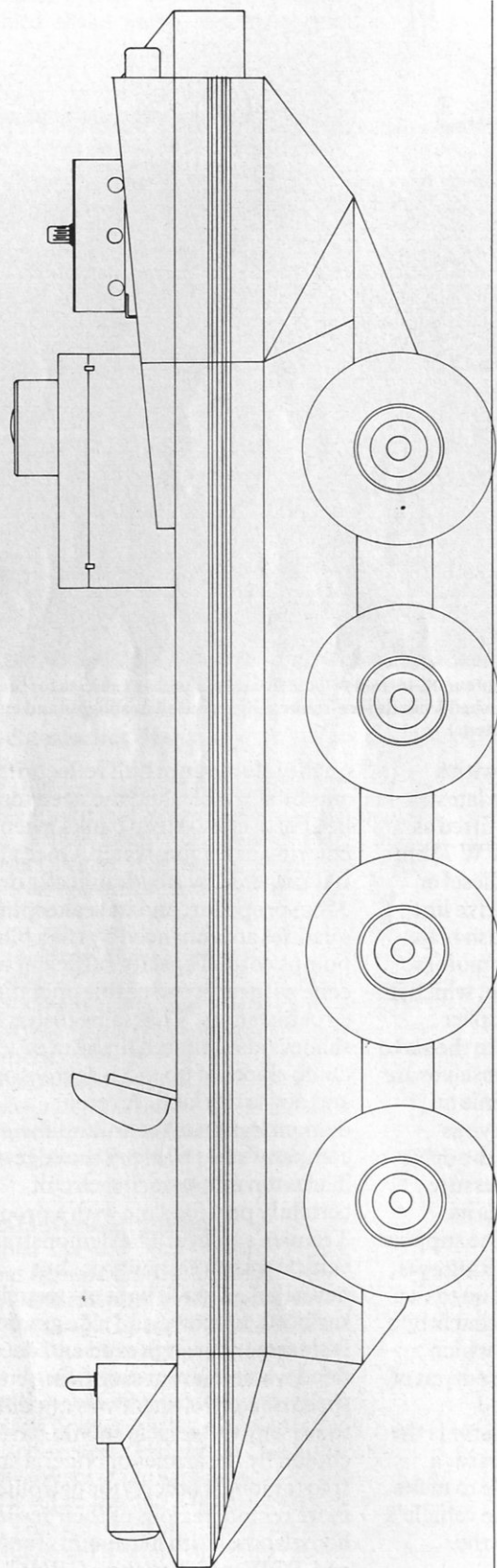
A view of early versions of the Saboteur all-terrain vehicle fitted as launcher vehicles for the Milan ATGW. Trooper may be distinguished from its fore-runners by its raised headlights and enclosed engine compartment (Photo Saboteur).

approved for service, did so with a specification stabilised in the latest Trooper model. The engine fitted as standard is the well-proven VW 73bhp petrol unit (although a VW diesel or Ford can be fitted) and the drive line consists of two hydraulic swash plate pumps driving two bent axis motors, one to each side of the vehicle, which in turn drives a master axle. Triplex roller chains link the master to the slave axles, and the stub axles themselves are carried by box-section aluminium side-members which also serve as totally enclosed oil baths for the drive system. The vehicle's low pressure 21 x 1100 8NHS tyres serve as its suspension system, and engine support plates, seats, tank control, lifting eyes, and other fittings are welded on to two robust cross-members. Steering is by a unique system of twist grips which control the speed and torque output of the two hydraulic pumps, and although performance in reverse is the same as when travelling forward, a skilled driver ought to be able to make an emergency turn within the vehicle's own length in order to retain the benefits of forward control.

Trooper's boat shaped marine

quality aluminium hull reflects its amphibious role, and the need for it to be able to climb steep banks when entering or leaving water. Once afloat it is powered by a hydraulically driven 35cm propeller, and its seakeeping qualities are enhanced by twin bilge pumps with a capacity sufficient to cope with most foreseeable operating circumstances. That same distinctive shape is also tailored to the need to climb slopes of up to 55-degrees on dry and not so dry land. A recent demonstration drive around the company's test track on the edge of the Thruxton motor-racing circuit certainly provided me with a proof of Trooper's agility. The demonstration vehicle was an earlier type, but nevertheless made light of steep, loose surfaced, up down and side gradients. It skimmed through mud and deep flood water without sacrificing either speed or control and it was not difficult to see why the vehicle should have been chosen by the armies of Nigeria and Iraq (amongst others) for patrolling the more remote regions of their respective homelands. With hardpoints for Milan and TOW missiles and a GPMG mounting as standard equipment,

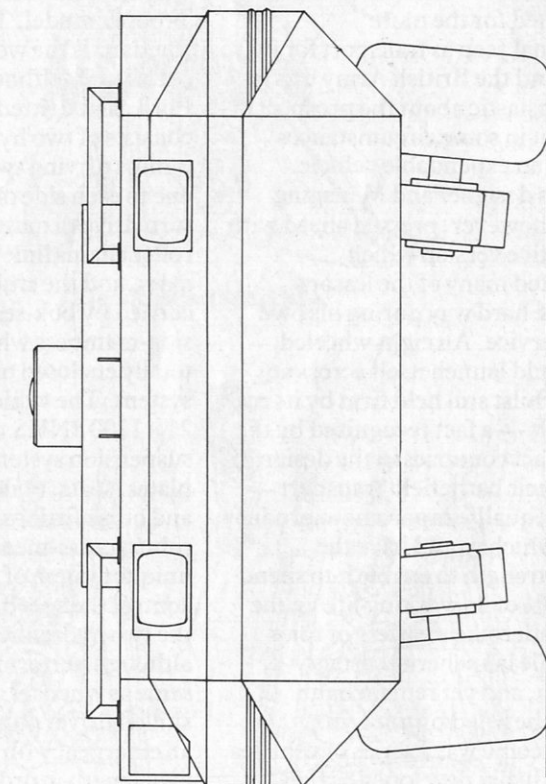




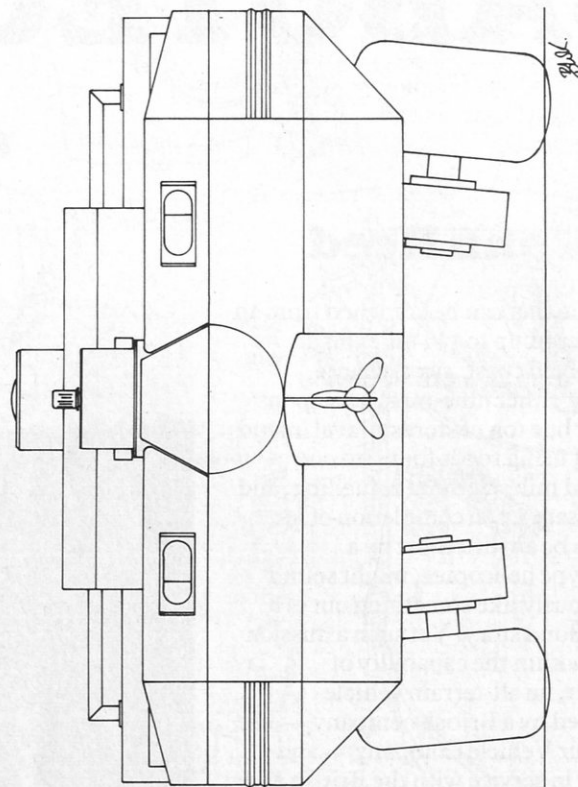
## DIMENSIONS

|        |   |       |
|--------|---|-------|
| LENGTH | - | 3.92m |
| WIDTH  | - | 1.90m |
| HEIGHT | - | 1.30m |

NEAR SIDE VIEW



FRONT VIEW



REAR VIEW

other armies are also making their own examinations of Trooper's suitability for a variety of roles. One application might well be as a 'strike vehicle' in the spearhead of rapid deployment forces, as quite apart from its versatility and agility, Trooper can be stacked three-deep by a forklift truck, a characteristic which enables a C-130 to carry twelve, and in certain circumstances still have payload available to permit it to carry their crews as well. Saboteur are also looking for civilian roles for their vehicles, and quite apart from the more obvious possibilities that exist in oilfield exploration and agriculture, have recently suggested that Trooper might be of value as a rapid intervention airport emergency vehicle at those many airports which either jut out into the sea or are flanked by river estuaries and mudflats. For such an application Saboteur propose a 2-3 stretcher ambulance configuration which should also permit carriage of two medical attendants in addition to the driver.

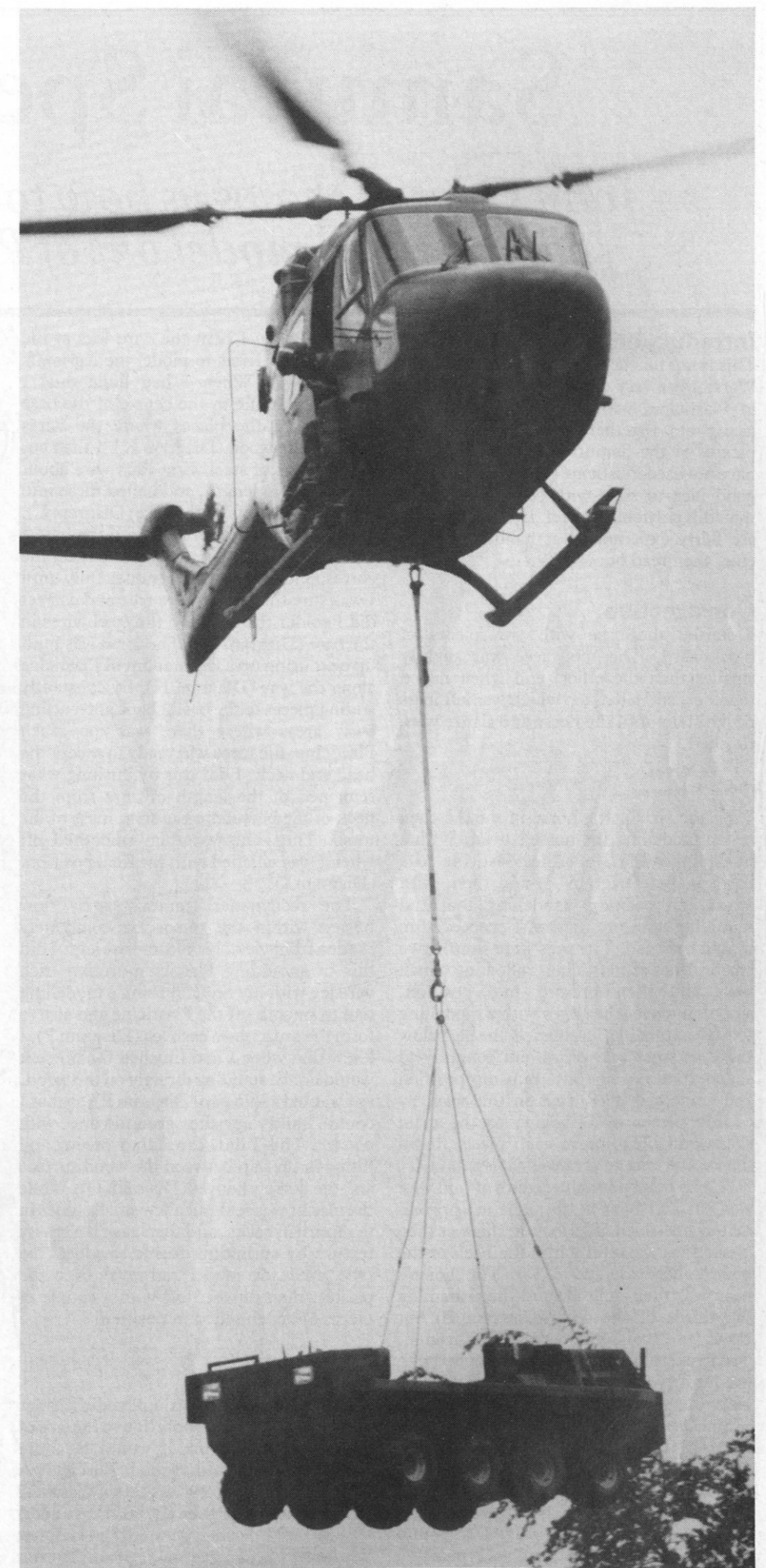
Meanwhile the British Army, which already uses Trooper in Northern Ireland, is looking at the possibility of using further vehicles, given suitable armour, as the basis of radio-controlled 'agile targets.' Other applications known to be under consideration include the use of remotely controlled vehicles for surveillance, and in a similar TV-equipped configuration for reconnaissance in the highly dangerous area ahead of advancing armour.

**Modelling Trooper**

Reference to the accompanying GA drawings and photographs will reveal no particular problems for the experienced scratch-builder wishing to model his own Trooper, and its real-life dimensions — only 300mm shorter than the one-tonne Landrover and 58mm wider make it a satisfying subject in either 1:32 or smaller scales. Only the eight low pressure tyres seem likely to tax the modeller's ingenuity, and the availability of a suitable source of supply for these that might eventually dictate the choice of scale. Certainly a 1:35 'Special Forces' version featuring the GPMG from Tamiya's 'Pink Panther' (suitably updated) and an assortment of patrol equipment would make a worthwhile subject for the modeller who wishes his collection to represent the state of the art in military transport.

**Dimensions for modellers**

Overall length 13ft 6in 3920mm  
Overall width 6ft 3in 1900mm  
Overall height 4ft 3in 1300mm  
Ground clearance 1ft 2in 360mm



Cargo Space 5ft 7in x 3ft 10in 1.71m x 1.17m  
Tyre Size 21 x 1100

A development version of the Saboteur all terrain vehicle slung beneath a Lynx helicopter. The Lynx is a type that usually operates under Army command. (Photo Saboteur).



# Samurai Special

*John Curran shows us how to construct a complicated model out of Plasticine*

## Introduction

This is not for the faint hearted! A Samurai Warrior is a very difficult subject to model in Plasticine, with all the abundance of lacing, etc, together with the overall complexity of the Samurai armour, so if you have not used Plasticine before it would be a good idea to start with something easier than this particular model. If, however, you are fairly experienced at handling Plasticine, then read on.

## Construction

I started the base with two pieces of blockboard. The top piece was slightly smaller than the other, and when nailed together, created a step which was left in its rough state until the horse and figure were finished.

## The horse

With the size of the horse in mind I then began modelling the horse's head. With a modelling knife I cut the Plasticine to a basic shape (Diagram A) and then, with a pin, an ordinary modelling tool and moulding with my fingers, I proceeded to mould the head. The eyes were simply two small pieces of Plasticine, rolled into small balls and then pressed into position, smoothing over the edges with a modelling tool (Diagram B). The horse's cheeks below the eyes were two pieces cut roughly to shape, flattened slightly, put into position and smoothed over. It is in this way, by adding pieces of Plasticine to the main shape and blending in each piece, that a final result can be achieved (Diagram C).

At this point a suitable length of thin wire was cut and bent at an angle at approximately one-third of its length; this was then pushed very carefully into the back of the horse's head (Diagram D). The horse's neck was then built around the remaining two-thirds of the wire (Diagram E) but make sure that some wire pokes through. The neck was then shaped and blended into the head (Diagram F), which should then be put to one side.

The next stage of construction was to deal with the body and legs. A wire frame for the body was made, and bent into a rectangle and the ends soldered together (Diagram G). For the legs I used two pieces of wire, one wire to each pair. Taking into consideration the proportions, I bent the wires to form a U shape (Diagram I); these were soldered to the rectangle frame, one at each end (Diagram H). At this stage I visualised the stance of the horse in its final

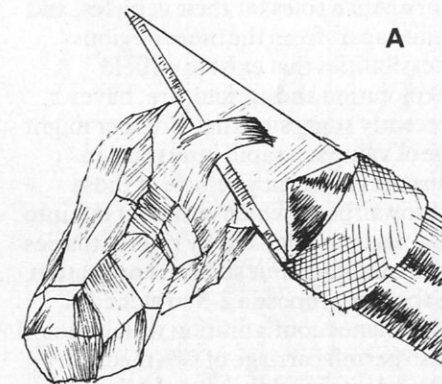
form and then I bent the wire legs at the points where I was to model the leg joints (Diagram J). When I had done this, I placed the frame in the centre of the base and marked the places where the wires touched the wood (Diagram K). I then cut four lengths of steel wire, each wire about four inches in length, and nailed these into the marked points on the base (Diagram L). After nailing the steel pegs into the base I bent them so that they matched the corresponding legs on the frame. Only until I was sure the angles were true and correct did I solder the frame to the steel wires in the base (Diagram M). The torso was built up next using a fair amount of Plasticine along the way (Diagram N). By constantly adding pieces to the basic shape and cutting away areas where there was too much Plasticine, the torso was ready to accept the head and neck. I did this by pushing what remained of the length of wire from the neck of the horse into the solid mass of the torso. The joint was then smoothed off when I was satisfied with the final position. (Diagram O).

The rectangular frame was by now buried within the torso and completely hidden from view. Next came the legs. I did this by moulding Plasticine around each wire leg with my fingers, using a modelling tool to smooth off the Plasticine and also to form the muscles on each leg (Diagram P). I knew that when I had finished the horse it would not be standing directly on the wood, as I wanted a 1/2in gap (Diagram P), so that I could build up the groundwork with plaster. This I did, carefully working and filling in the gap between the wood surface and the horse's hooves (Diagram Q). While the plaster was set I put a few small stones in to represent rocks, and then gave it a grassy texture by sprinkling scenic sawdust (the type used for model railways) over the plaster, then finished off with a couple of pieces of lichen glued in position.

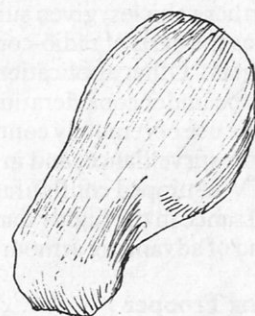
## The Samurai

With the horse almost completed the rider can now be made in proportion to the size of the animal as I think it would be more difficult the other way round. Research as regards the different types of Samurai Armour came from books from my local library and I decided to model a type that was known as Great Armour, from the 13th Century.

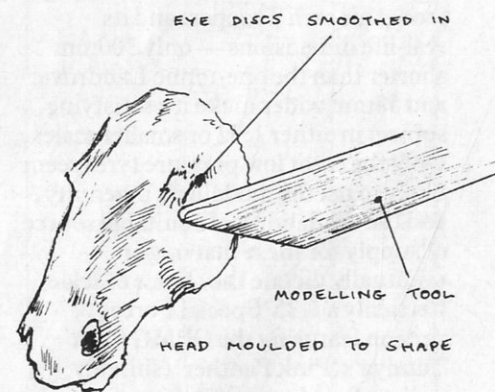
Support for the figure came from a single piece of wire which ran straight through from the head downwards. I ensured that a



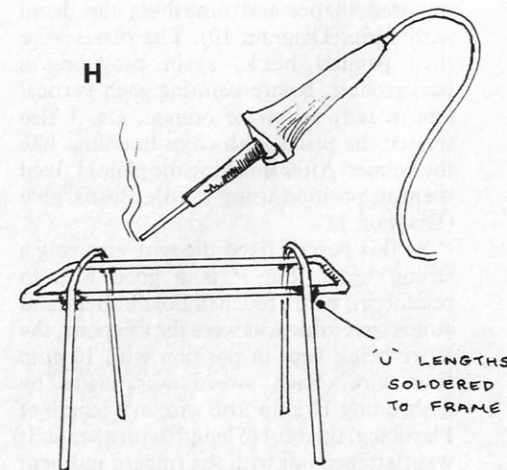
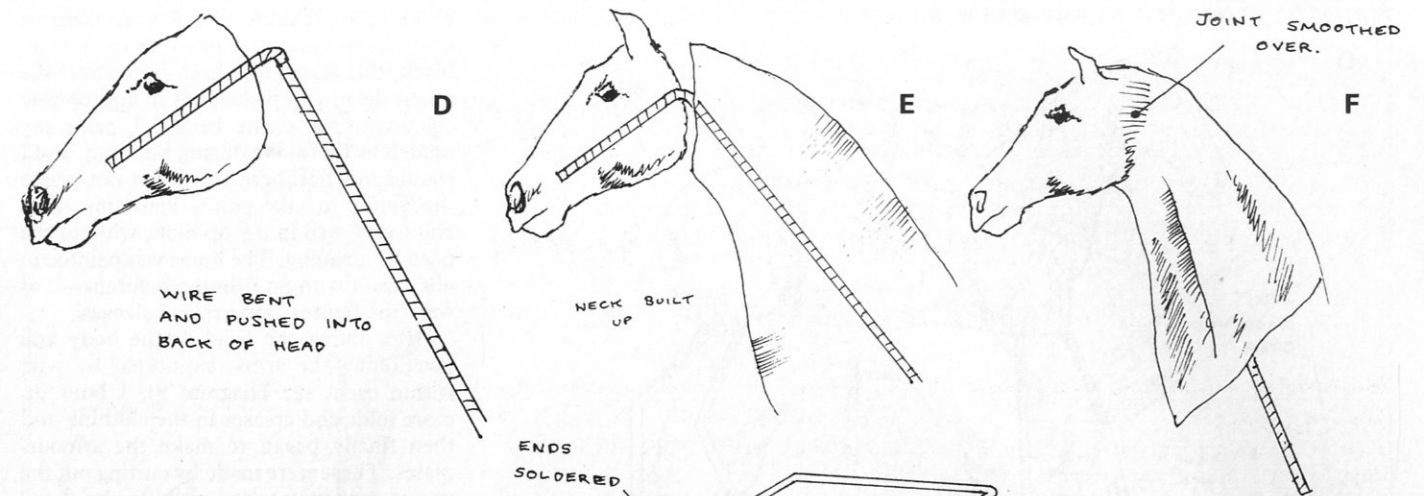
ROUGH SHAPE CUT WITH KNIFE



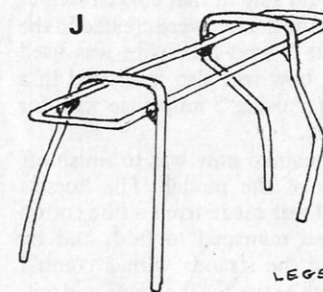
BASIC SHAPE SMOOTHED WITH FINGERS AND MODELLING TOOL



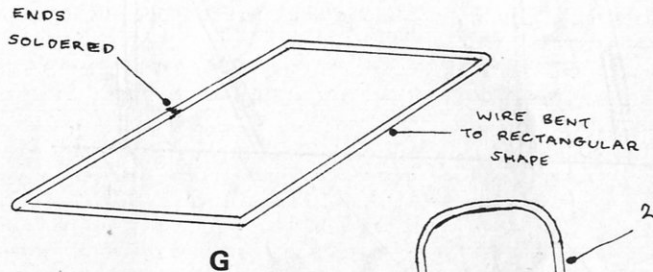
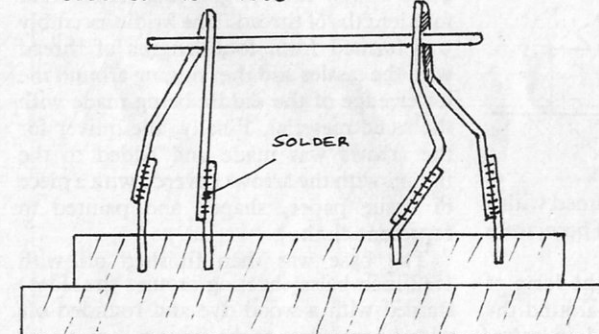
HEAD MOULDED TO SHAPE



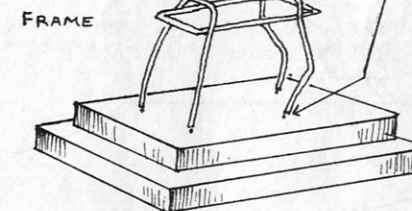
LEGS BENT INTO DESIRED POSITIONS



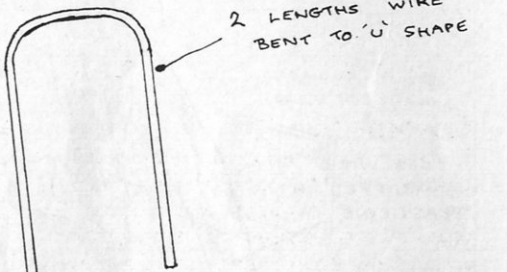
FRAME LEGS MATCHED AND SOLDERED TO PEGS



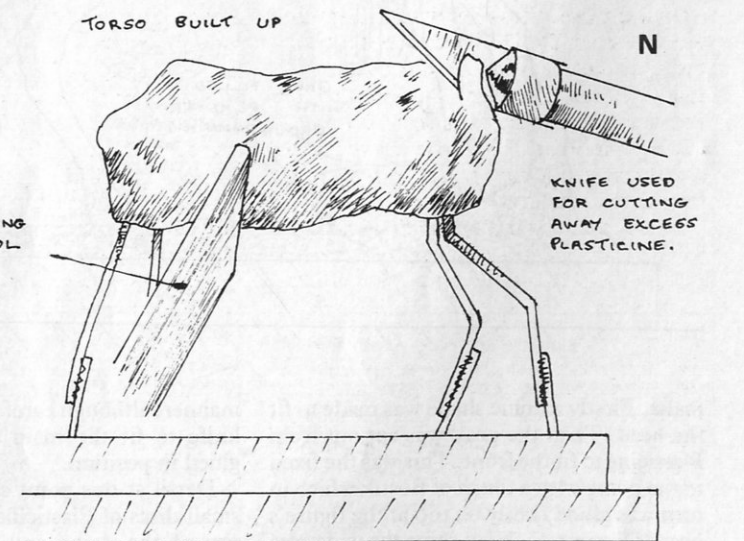
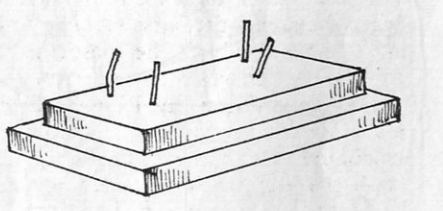
POINTS MARKED ON BASE



FRAME



STEEL WIRE LENGTHS FIXED IN POSITION



TORSO BUILT UP

KNIFE USED FOR CUTTING AWAY EXCESS PLASTICINE.

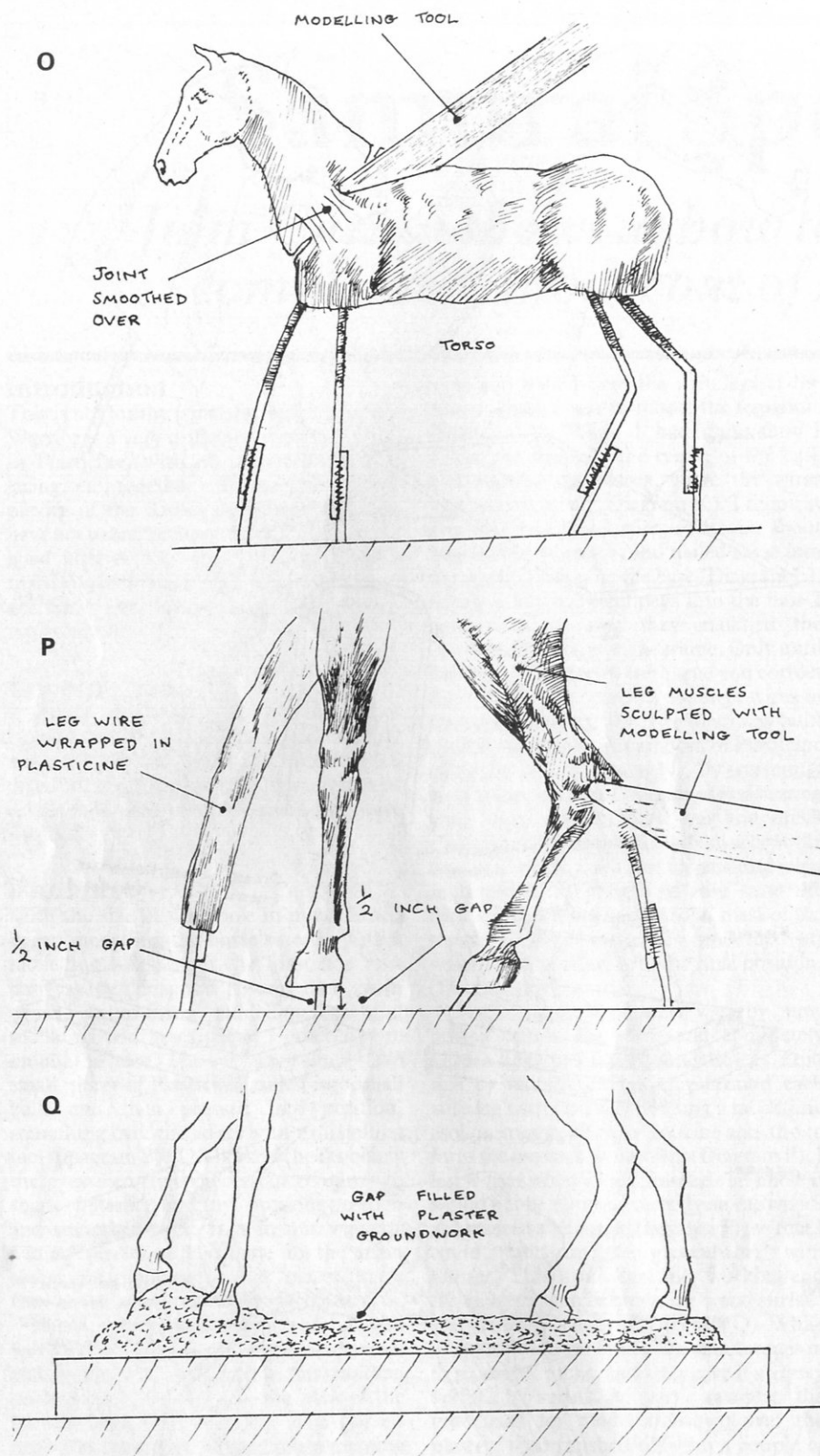
certain length showed through underneath, as this would enable me to press the figure on to the back of the horse when the time came. First I modelled the figure's body (Diagram 1), without making any folds or creases at this stage as it would soon be covered with armour. I did make folds, etc, when I made the legs (Diagram 2). I made use of a fair amount of Plasticine here in

order to make the trousers look baggy and thick. The shinguards were cut to shape using a knife (Diagram 3) and a good deal of parts for the figure were made in this manner (feet, stirrups, straps and the saddle to name but four items).

The body armour was also made this way. The shapes for the front and back armour were cut and detail was inscribed

with a pin (Diagram 4). After painting these in enamels I firmly fixed them in position with a little Bostik glue. The head of the figure was moulded into shape after which I then cut the top off from a point just above the eyes so as to prepare it for the Samurai helmet (Diagram 5). This was perhaps the most complex part of the model and one that demanded a fair amount of time to





make. Firstly a dome shape was made to fit the head. Then the peak was cut out from Plasticine to fit the front. This was the fixed to the dome with a touch of Bostik which in turn was glued firmly on top of the figure's head (Diagram 6). Next came the wide area of the helmet at the back which protected the neck and shoulders. This was cut to shape as shown (Diagram 7) then the top of this was positioned around the rear rim of the dome and blended in with a modelling tool. It took a couple of attempts at cutting out the shape before I was satisfied with it. The curving ends of this part of the helmet, on each of the peak, were made in the same

manner, although carefully trimmed with a knife to fit the main piece. These were glued in position.

Detail at this point came in the form of small discs of Plasticine added around the rim of the dome and arranged in rows, meeting at the top. I made the discs so that each one was smaller than the last as they neared the top. I then added decorative detail using a pin. Cross-braiding around the rear rim was represented by making individual crosses each from two very small slivers of Plasticine (Diagram 8). These were kept in position by *very gently* pressing them down with the touch of a finger.

Much more braiding detail was inscribed using a pin, and after painting the helmet black (this serves as a back-up colour) the raised detail was picked out in appropriate colours using a fine brush. I paint my models as I go along during building, and I should mention here that I did not prime the model to take paint. Plasticine takes paint very well in my opinion, without the need for priming. The horse was painted in oils, again with no priming beforehand, as were the figures' trousers and sleeves.

After fixing the head to the body and positioning the arms (supported by wire within each, see Diagram 9), I built up more folds and creases in the clothing and then finally began to make the armour-plates. These were made by cutting out the required shapes and inscribing the detail with a pin (Diagram 10). The plates were then painted black, again providing a background, before painting each vertical line in red, yellow or orange, etc. I also treated the plates with cross-braiding, like the helmet. After finishing the plates I fixed them in position using a little Bostik glue (Diagram 11).

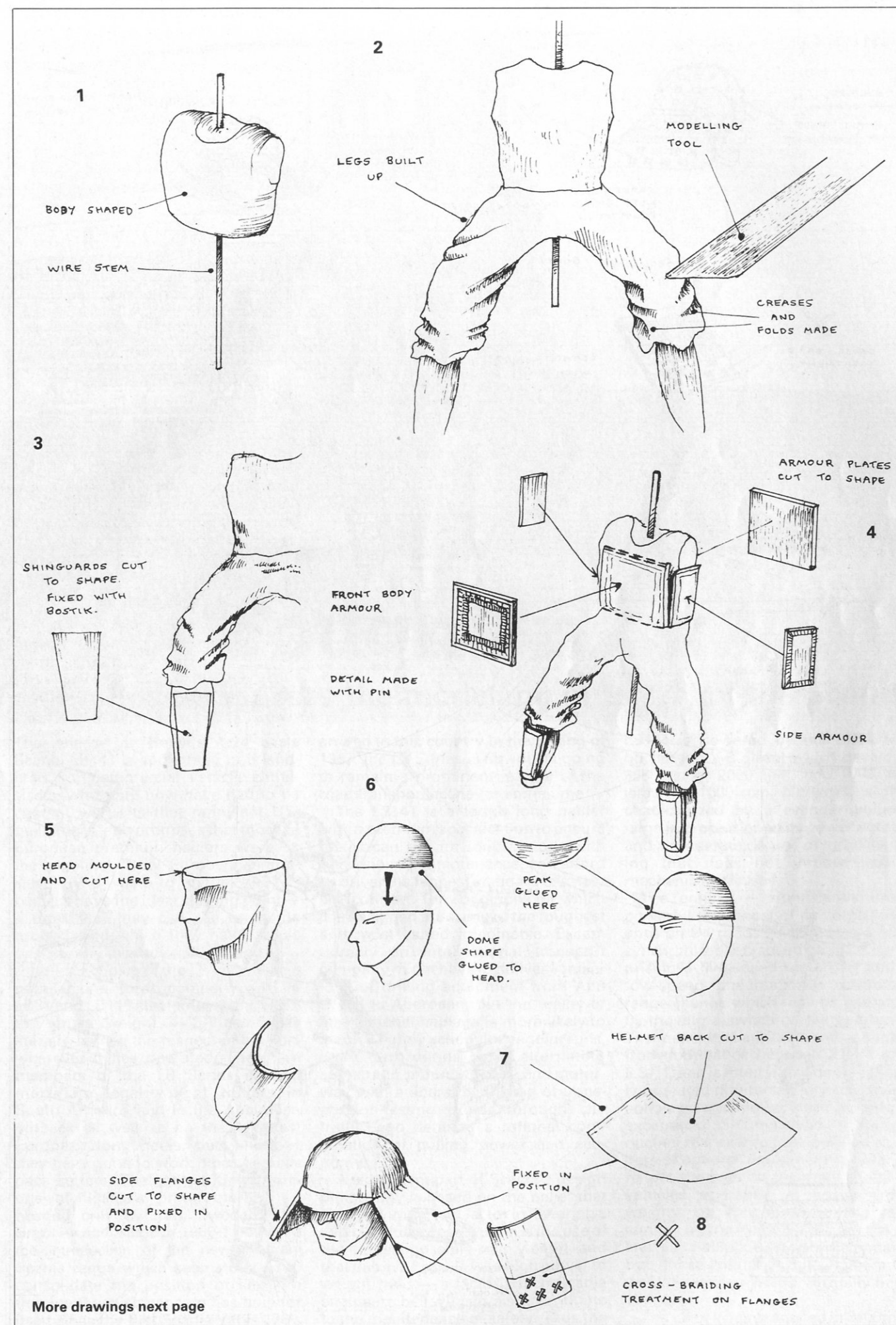
At this point I fixed the wire ensuring a strong bond, but it is a good idea to reinforce it with a touch of Bostik. Belts and straps were added, as were the weapons, the latter being kept in position with 10 amp fuse wire. Each sword was made by embedding 10 amp fuse wire in a length of Plasticine, then cut to length with a knife. It was flattened out with the fingers and bent into a gentle curve like that of a typical Samurai sword; the weir ensuring that the Plasticine would stay in that curved shape. The horns on the helmet were created in the same way but 5 amp fuse wire was used instead. The bow was also fashioned in a similar manner using 5 amp fuse wire for the bow string.

All that remained now was to finish off certain items of the model. The horse's mane and tail was made from a fine cotton material I had managed to find, and by gently teasing the strands with a comb I formed enough to use for the mane and tail, fixing each with a little glue and trimming up with a pair of scissors. The horse's reins were red thread, made by plaiting together three strips, each strip being made from four lengths of thread. The bridle assembly was formed from four lengths of thread with the tassels and the fringing around the lower edge of the saddle being made with the same material. Finally, the quiver for the arrows was made and added to the figure, with the arrows covered with a piece of tissue paper, shaped and painted to represent cloth.

The base was then finished off with 1:32 inch balsa sheeting around the sides, stained with a wood dye and rounded off with a nameplate at the front.

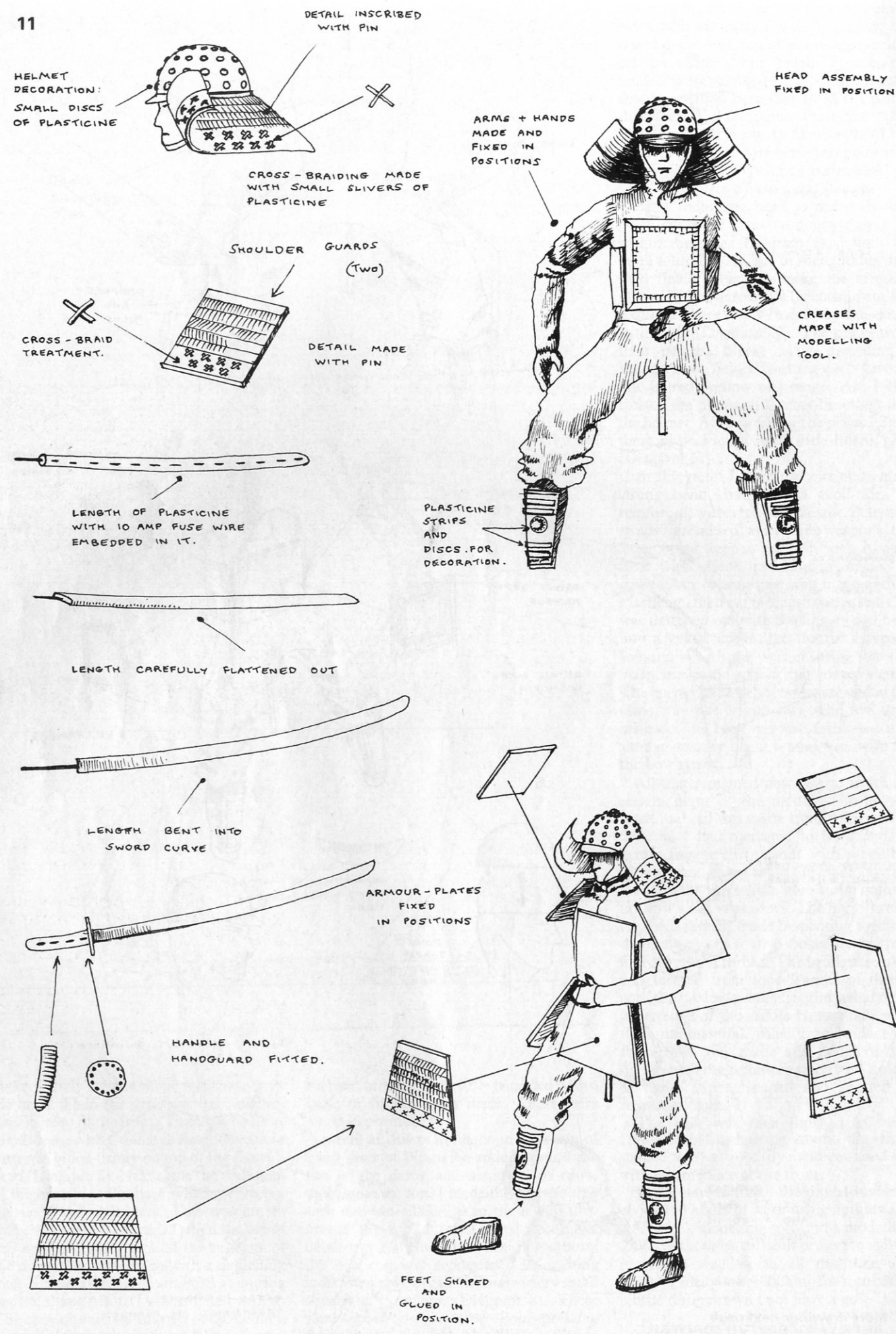
From start to finish the model involved about 160 hours of work using nothing but a needle, a modelling tool and a modelling knife. Although a difficult project to tackle, it proved well worth all the time and trouble, so if you are looking for something a little different why not have a go.

Drawings by Richard Warren



More drawings next page





# Tough Truck

John Reed discusses the modelling potential of the Scania

The release of Heller's 1:24 scale Scania LB141 is something of a landmark for commercial vehicle enthusiasts, who until now have had to be content with kits that represent US-built trucks, and promises that those of European premium haulers were 'in the pipeline'. Now European enthusiasts who wish to model today's heavies have the ideal starting point — a truck that they can see on home ground, and which they have ample opportunity to study at first hand.

Heller's choice of the LB141 will be a popular one, for in company with its LB81 and LB111 stablemates, the 61.75 ton gross weight 4x2 tractor has literally *earned* the respect of hauliers wherever it has operated. There are members of the LB Series hauling maximum legal weight trailers in South America and in the Australian outback as well as on the toughest European long hauls, but wherever they have gone to work it has been as pace setters. The United Kingdom is one of Scania's prime markets — headed only by Iraq, Sweden, and Brazil — and although 1980-1 had seen the introduction of the new Program Scania range which seems certain to consolidate the position of strength that the Swedish concern has built for itself since the first Scania Vabis L76's

arrived in this country in the Spring of 1967, the LB Series is obviously going to remain a prominent feature of the road transport scene for some time.

The LB141 is a tough long hauler with a premium specification to ensure that it can run for long periods with only minimal maintenance, and afford its driver the highest standard of safety and comfort. The conditions for which it is designed are some of the toughest and most varied imaginable. Exceptionally an international transport company might have to deliver a trailer load of drilling equipment from Abu Dhabi to Aberdeen, but the reality of international haulage is more likely to involve tightly scheduled regular runs, quick turnrounds, and alternating autostrada, mountain pass, and motorway with a liberal sprinkling of transmission-testing grinds through city traffic, and demand a rational combination of pulling power and economy.

A significant part of Scania's design philosophy is based on the belief that the most important factor in lowering a vehicle's fuel consumption is the use of the highest possible train weight, and that this in turn calls for a high power to weight ratio — a factor which Scania engineers believe can also contribute to the maintenance of safety. Thus the

LB141 is powered by the DS14 turbocharged V-8 diesel which develops 355 bhp at 2000 rpm, and 1090 lb.ft torque at 1300 rpm, but which is also characterized by a cylinder volume large in proportion to its power output, and a moderate degree of turbocharging that does not impose undue mechanical stresses.

The engine — significantly more powerful than most of its contemporaries on UK roads — drives via a fully synchronized ten-speed gearbox comprising a five-speed main unit and a tow-speed pneumatically controlled range change which may be operated by moving a switch on the gearlever. The rear axle is available with a choice from four ratios between 3.88:1 and 5.81:1, and is fitted with a pneumatically-operated differential lock to provide enhanced traction for short periods in exceptional circumstances. A hub reduction rear axle can be specified as an item of optional equipment in order to relieve the load on the drive shafts of vehicles operating at heavy gross weights on rough roads. The rear springs on the Heller model are the 12 leaf semi-elliptics fitted as standard, but those fitted to the maximum weight versions would normally have 15 leaves.

The LB141 was produced in 3400mm





Scania LB141 operated by East Anglian hauliers Russell Davies on general and container haulage — a familiar sight in the bustling East Coast container and Ro-Ro ports. The Russell Davies fleet is finished in white and yellow, with black lining. The heading photograph shows the 6x4 version of the LB141, a popular vehicle with heavy haulage and plant removal contractors which shares many features with the single rear axle version that forms the subject of the Heller kit. Note the additional detail on tanks, air cylinders, and battery boxes, all of which can be reproduced by modellers seeking that extra degree of authenticity.

and 3800mm wheelbase versions. The Heller model depicts the 3800mm type, and in so far as its driveline is concerned, modellers need only follow the kit instructions to produce a perfectly credible replica, and the extent of the additional 'plumbing' that can be added is limited only by his own competence. Certainly the injector pipes could be reproduced using fine wire, and there is no shortage of full-sized Scania trucks to provide ideas.

When it comes to the cab interior the modeller has considerable scope for self-expression. The standard cab is the Type HB11, a 2-man rubber-mounted, sound-insulated unit, which can tilt forward through sixty degrees, and is fitted with an electrically heated driver's seat, and a double heating and ventilation system. The Heller LB141 is depicted as being fitted with the twin-birth HB13 sleeper cab, but lacks its curtaining and interior/sleeping com-

partment lighting. Both features can be easily added by using silver-painted Microstrip as curtain runner, and scrap clear plastic on silver painted or chrome plated scrap for the lights. Detailing enthusiasts may also add adjusting and control levers to the driver's and passenger seats, but might prefer to opt for up-grading the cab to the HB13 de luxe sleeper unit, which also incorporates velour-type upholstery and inlaid mat on the engine cover, velour-covered 100mm thick sleeping cushions, net pockets above the bunks, and sunvisors. Other 'top of the range' long haul fitments include a radio/tape recorder on a shelf above the windscreen, interior insulated seatbox, and air conditioning and external sunvisors as optional 'extras'. A small fire extinguisher may be installed in the cab behind kit part 60, which should be built up to approximately half of the height of the seat squab, and provided with a small cylindrical lock at the rear of the tray, to represent the document box supplies as standard with the de luxe cab.

In terms of quality, the Heller kit certainly lives up to its manufacturer's reputation, and the big Scania can be tackled with confidence by even the less experienced modeller. Don't be put off by the price tag, the standard of fit and detail make the LB141 a spectacular addition to any collection, but as is the case with most 1:24 scale models you will still have to add some extra detail if you are to achieve either the 'ex-showroom' look, or the appearance of a hard-worked long hauler. Most important, are those items which Heller have somewhat surprisingly omitted from the area behind the cab.



Italian (but nevertheless right hand drive) long hauler. The colour scheme for the tractor unit is blue/grey, and for the tank blue/yellow.



General haulage sleeper cab version of the 141. The LB141 has a luxury cab but is specifically designed with the needs of the long distance haulier. Scania have been amongst the pacesetters in a revolution that has seen the cab of the heavy lorry transformed from an austere workplace into a well-designed combined workplace/living quarters.



Stablemate. The Scania LB111, a 4x2 tractor rated at up to 46 tons GTW, and powered by a 275 bhp engine, is a popular choice with many UK hauliers.



Vehicles like this compact single decker are in widespread service in many Middle Eastern and South American countries, although not yet a familiar sight on British roads.

A look at any of today's long haulers will reveal how even the US truck kit-makers miss an important point. The area between the cab and the fifth-wheel coupling is very much the 'business end' and even on the smartest rigs it tends to be untidy and somewhat cluttered. If you are looking for authenticity, you will have to add grime at the painting stage, but there are also a few simple scratch-built additions that can transform your model. The key feature is the 'suzie', the three-line air connexion system mounted on a T-shaped frame located above the chassis member immediately behind the cab. The connectors for the air lines feeding the trailer brakes are mounted vertically on the bar of the 'T' with coiled yellow, blue, and red lines leading back to the pick-up points for the trailer system. Beneath them is a similar (but black) coiled lead from an electrical connector supplying the lighting system. You may model these hoses and leads from telephone wire

— which is already conveniently coloured — but fine Microrod steam-heated, and coloured around a suitable small diameter former may be more suitable if you are looking for the authentic faded and be-grimed effect. Steps to enable the driver to reach the connexions and a working platform are also essential (you may also wish to add a small spotlight to illuminate the area behind the cab as this is a common modification), and the latter may be modelled as either a grille-type fabrication using Plastruct components, or as a full width plain metal or checker plate deck using grey-aluminium painted 60 thou card. The righthand fuel tank should also be modified by the addition of twin fuel transfer pipes which cross-feed the LH tank, whilst the tree straps securing each tank should be painted in such a manner as to show their black rubber backing strips.

Paintwork for the finished model is very much a matter of individual taste,

and the photographs accompanying this article should provide the newcomer to truck modelling, with a few ideas. With paintwork, as with additions, the rule is — decide what you want your truck to represent, a general hauler, container carrier, or bulk tipper perhaps, then look at several real life trucks doing that job, and here the truck modeller has the advantage of more readily available full-sized examples than most of his contemporaries in other fields. Note the variations — you'll be surprised at how many extras are grafted on to long-haulers — and select the 'fit' for the role that you have selected. The writer's own model has been finished as a 'workhorse', a long-hauler with a well-used de luxe cab and commensurately weathered appearance. The next step will be to add Heller's 12-metre Danzas TIR trailer, and to bring a long cherished dream of a small fleet of matched contemporary European road-haulage equipment a step nearer to reality.



# More on Spitfires by Simon Gerrard

## Introduction

There have been many variants of the Supermarine Spitfire (see *Airfix Magazine* April 1982) most of which have been covered by modellers. This is one that I'm sure has not been featured, or is indeed known by many modellers. The 'variant' that I write of, is a German, Daimler-Benz powered, Spitfire Vb.

I used the Airfix 1:48 scale Spitfire and Messerschmitt, although you could use any 1:72 scale model.

## History

The Spitfire, EN 830, came to be captured by the German army in 1943; just how remains a mystery. It was frequently flown by the Luftwaffe for comparative tests, mostly, I presume, against the Messerschmitt 109F. However, in 1944 it was fitted with a Daimler-Benz DB 605 A-I powerplant at the Daimler-Benz main test centre, probably because the Luftwaffe was short of Spitfire engines. It was there that EN 830 was repainted and coded CJ+ZY, in accordance with Luftwaffe standards. Unfortunately, the aircraft was destroyed in an air raid on the Daimler-Benz facility in late 1944.

## Modelling

The beginning of this conversion is quite simple. Cut off the Spitfire and Messerschmitt engines as in the diagrams. Assemble the Spitfire fuselage, and set aside to dry. Next, find two pieces of sprue, one must be 4mm wide, the other 2mm wide.

Assemble the two Messerschmitt engine halves, but do not glue them together yet. Cut the 4mm sprue to the length of the upper mid-join, and the 2mm sprue to the length of the lower mid-join, of the 109 engine. You can, of course, use plastic card in place of the sprue — I personally preferred the sprue but it is always best to use what you feel comfortable with.

Now, glue the engine halves together, with the pre-cut sprue in the middle joins. While the glue dries out, move the sprues so that they project outwards, towards the engine propeller. These will serve as height datum lines when you use filler later on. They also serve to increase the engine width, which can now lie on a more flush plane with that of the Spitfire fuselage (see diagrams). Leave this to dry.

Next turn to the wings. Before or after cementing the wings, fill in and smooth over the air intake locating lugs. Take the 'box intake' of the Spitfire (part No 48 or 49) and trim, as in diagrams. Cement the new intake immediately forward of the formation light of the Spitfire, centrally below the cockpit.

Apply filler to the parts of the 109 engine (see diagrams). Sand it down and contour it with the engine. When complete and dry, the 'new' cowling diameter should be visibly slightly larger than the propeller diameter. It may require some shaping to maintain the correct outline, described by the propeller circumference.

Thin the inner side of the wing roots of the Spitfire and offer the 109 engine up to its fuselage. Glue the engine to the fuselage. Now, if you have applied enough filler to the 109 engine, the whole engine cowl at the fuselage join is just visibly larger — it was so on the original aircraft. If not, then you can apply a little more filler.

At this juncture, construct the propeller unit. Remember to remove the machine gun port on the tip of the propeller spinner; sanding will remove it.

Glue the wings to the fuselage and leave to dry — about one day. When ready, fill in any gaps around the wing roots and cowlings. Don't forget to fill in the space underneath the engine, where it joins the wings.

Finally come the exhausts; these are covered or shrouded, similar to the night fighter principle and they are quite simple to model. Fill over the second, third and fourth exhaust stubs, increasing the shroud thickness towards the rear (see diagrams).

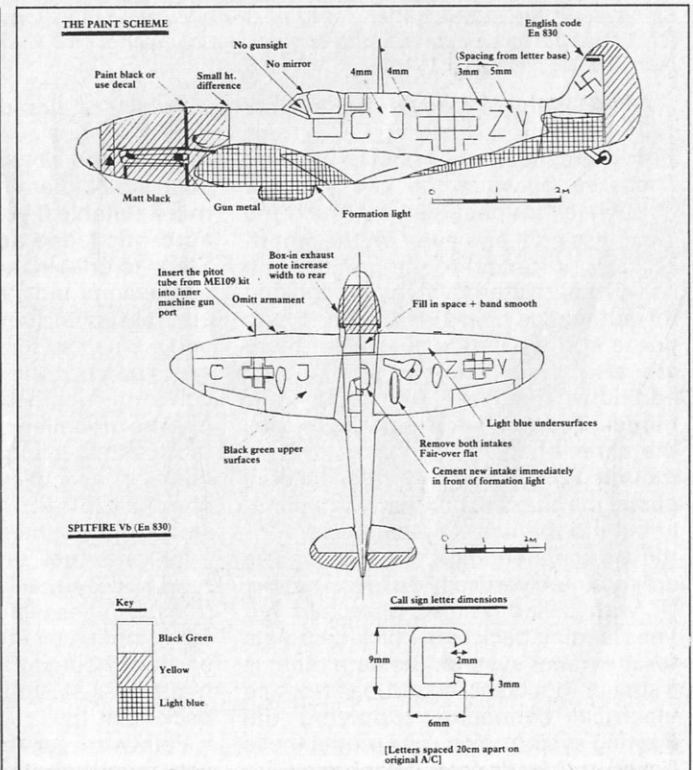
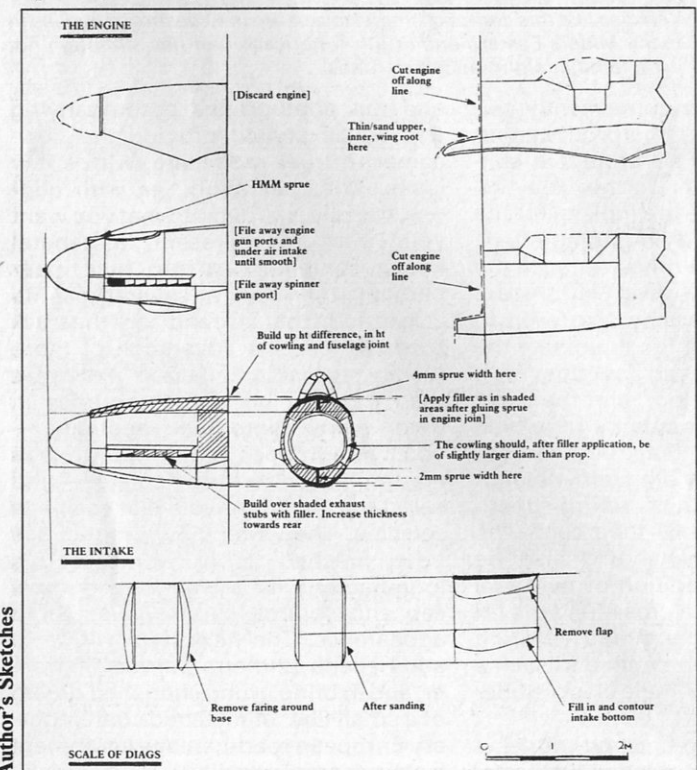
## Markings

The Spitfire was given the radio call-sign CJ+ZY, in black letters. Here the letters were probably applied to the lower wing surfaces, so I have included their likely positions. I have also put in the respective measurements for those of you who may have to make your own letters; mine were procured after a careful search through the decal spares box. Conveniently for this scale, 1:72 scale letters will suffice for they are only incorrect in width, being a little too narrow. The letters CJ+ZY were definitely applied to the fuselage sides (see diagrams).

All of the crosses and Swastikas come from the 109 kit decals. The code letters EN 830 came from an Airfix 1:72 scale Spitfire Vb decal set; although I have no way of checking their scale, they certainly look correct, bearing in mind the other 1:72 scale letters.

## Painting

Painting your model is quite straightforward. The propeller is matt black overall, while the rest of the camouflage is the same as the drawing. I used Humbrol (HG I) Schwarzgrün for the upper surfaces. And that is all there is to it! At the end of the day you should have an interesting, if not unique model to add to your collection and one that you can be proud of.



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Compiled by Phil Hunt

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# AIRFIX

## magazine

for modellers

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compiled by Elizabeth Elliot



# Torpedo-Bomber Colours



J8006 with its original grey-painted cowling painted silver to be uniform with the powdered aluminium doped fabric (Glyn Owen).

## Part 7: The Hawker Horsley by Bruce Robertson

So far in this series, the torpedo-bombers have been float-planes or shipborne aircraft. With the adoption of the Hawker Horsley (after two prototypes, J7511 and J7721, had proven the type) a landplane torpedo bomber evolved. Originally, the name Kingston was mooted, appropriate as the location of H. G. Hawker Engineering Company, and in accordance with Air Ministry policy of naming bombers after locations. Unfortunately the name had already been allotted so T.O.M. Sopwith, one of the company's founders, proposed Horsley as alliterative with Hawker; the name coming from his own residence of Horsley Towers. While a house name was not acceptable in the official nomenclature, there were parishes of East and West Horsley and a Long Horsley — so Horsley it was.

Initially the Horsley was produced as a medium day bomber, utilising the 660 hp Rolls-Royce Condor III engine, as decreed by Air Ministry Specification 26-23. Its rivals were the Bristol Berkeley and Handley Page Handcross, but only the Horsley succeeded in gaining a production order for 40 (J7987-8026) which retrospectively came to be classed as Horsley Mk Is.

The first bombing squadron to receive Horsleys, was No 11 Squadron at Netheravon in late 1926, followed by No 100 Squadron at Spittlegate. In January 1928 Headquarters, Air Defence Great Britain, recommended that in order to distinguish between the two Horsley squadrons, No 11 should have a 4-inch black band around the

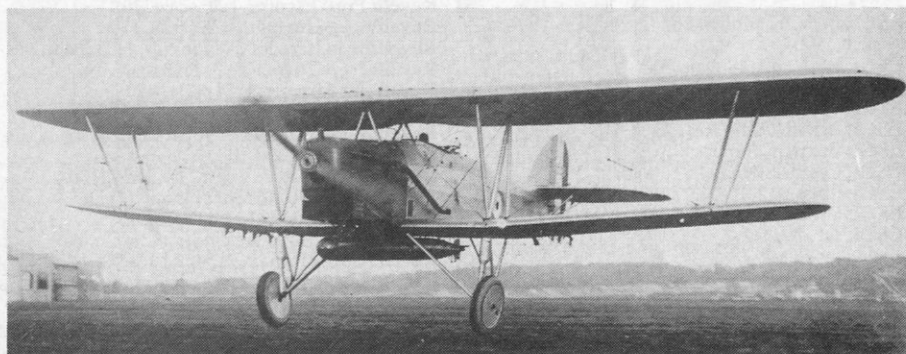
fuselage, just aft of the roundel, while No 100 should have two such bands similarly positioned. Following trials these markings lapsed in favour of the general Wessex Bombing Area policy of marking the squadron number forward of the fuselage roundel.

The first squadron to have a Horsley torpedo-bomber was No 15 which was included in the establishment of the Aeroplane and Armament Experimental Establishment at Martlesham Heath, and so acted as an armament trials squadron. This squadron on paper was a Horsley squadron of a headquarters and three flights, but whereas Nos 11 and 100 Squadrons had some 14 officers and 10 sergeant pilots each, No 15 had only ten officers and a single sergeant pilot. Its miscellaneous

collection of Horsleys included the two day bomber prototypes and the first production Mk I supplemented by Mk Is J8007 and J8008.

On their own initiative, Hawker's had converted the twentieth production aircraft (J8006) experimentally as a torpedo-bomber. This was sent to No 15 Squadron for testing. With a new requirement arising for a coastal defence torpedo-bomber, Specification 17/27 was written around the new aircraft. Twelve aircraft ordered in September 1927, were numbered S1236-1247 in the serial series than reserved for marine or coastal operating aircraft. With the building of the Singapore naval base and the decision to rely on coastal guns and torpedo-bombers for defence against an attack from the sea, two further batches of

A number of Horsley's were allotted to No 15 Squadron, the armament testing squadron at Martlesham Heath where J8006 the prototype torpedo-bomber is seen on trials. This aircraft bore the New Types Park No 7 at the 1927 RAF Display at Hendon (Flight 317).

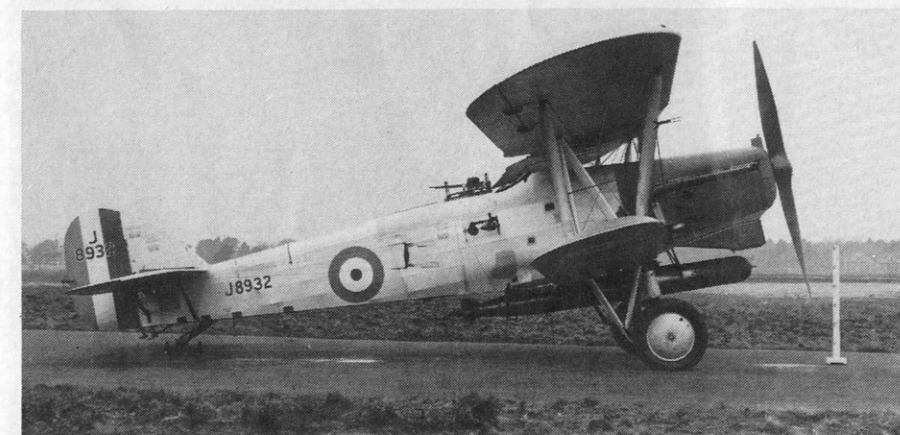


the new Mk II standard were ordered in 1930, eighteen numbered S1436-1453 and seventeen as S1597-1613.

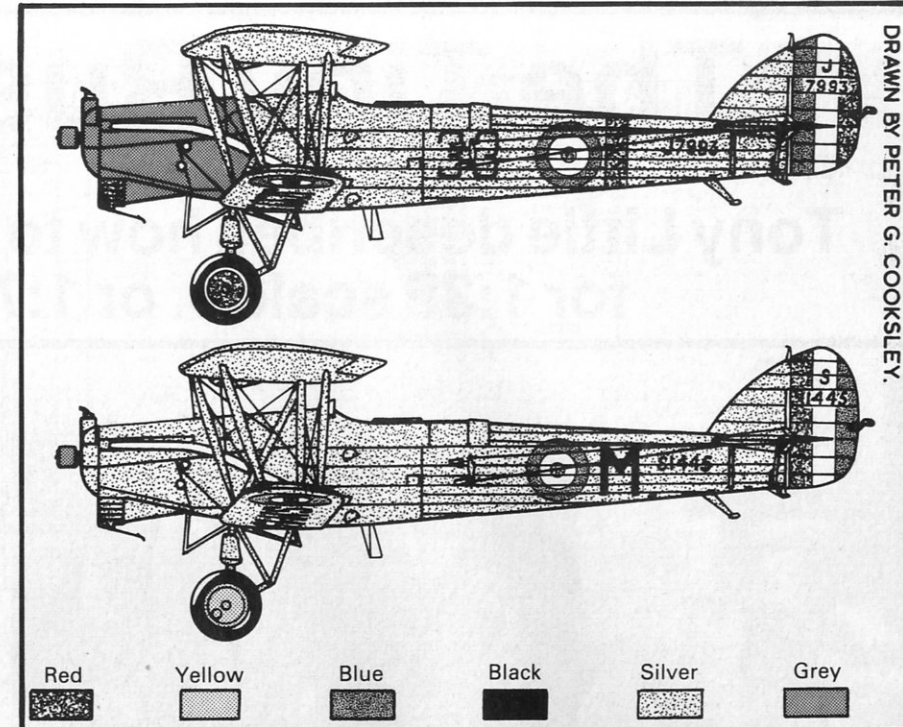
Meanwhile, a further twenty five (J8597-8621) day bombers had been ordered of composite metal/wood construction, in place of the mainly wooden construction of earlier batches, to a new MK III standard. A further two squadrons were raised, No 33 reformed with Horsleys at Netheravon in March 1929 and took them to the coastal station of Eastchurch before the year was out, and No 36 reformed with Horsleys in October 1928 at the fleet base flying station of Donibristle. As No 11 had by then given up its Horsleys for Wapitis on going to India, No 33 Squadron was officially given its black band marking, but of 6 inches in this case. No 36, earmarked for Singapore, was not given a marking. While this squadron's personnel sailed for Singapore in 1930, Horsley IIs were sent by ship to Karachi for re-assembly and flight delivery via Burma and Malaya.

An unusual facet of Horsley markings was that in addition to the normal flight identification by wheel disc colouring of 'A' Flight red, 'B' Flight yellow and 'C' Flight blue, these colours were extended to include the bottom of the radiator. In some squadrons, the official allotted marking were ignored; No 33 for example had a thick band in flight colours marked around the fuselage, aft of the roundel, to denote flight commander's aircraft which, in their day bombing role, was the flight leader's

A starboard rear view of the Dantorp, a float-mounted, Leopard-powered, three-seat version of the Horsley torpedo-bomber for the Royal Danish Navy. This view from the rear, supplements the view of this aircraft from the front given in the opening article of this series in February 1982 (Air Ministry 8002D).



A single all-metal Horsley, J8932, was built for evaluation as a torpedo-bomber, finished in aluminium doped to Cellon Scheme C. Above the fuselage serial two thin red lines show the rip-away panel for the marine distress signals carried in the rear fuselage (Air Ministry 6913).



These two Horsleys, drawn by Peter G. Cooksley, show 'A' Flight leader's Horsley I of No 33 Squadron, 1929, and a Horsley II of No 36 Squadron, 1932.

aircraft in formation flying.

Before the reversal of rudder stripes that occurred in August 1930, mentioned in detail in previous parts, the Horsley had been withdrawn from regular squadrons, and was serving only in No 504 (County of

Nottingham) Squadron of the Special Reserve at Hucknall and the Night Flying Flight (renamed Anti-Aircraft Co-operation Flight early in 1931) at Biggin Hill. The Horsley was withdrawn from service in the UK in August 1934 with the Mk I and II being declared obsolete.

There were limited exports of Horsleys. Six were supplied to the Royal Hellenic Naval Air Service powered by Condor IIIA engines and fitted for carrying the British 18-inch Mk VIII torpedo. Two, as the Dantorp, were supplied as three-seat float-plane torpedo-bombers as pattern aircraft for possible production in Denmark that was not effected. There were several variants in British service apart from the different mark numbers recorded. J8607-8608 were special long-range versions. The first came down in the Persian Gulf on a non-stop flight to India. That in itself was a world's unofficial long distance record, but it was broken officially within hours by Lindbergh's epic solo New York to Paris flight. The second, grossly overloaded, force-landed next month after take-off from Martlesham on another record attempt. Other Horsleys were used as engine testbeds, including J8611 and S1436 as Rolls-Royce Merlin engine testbeds, and S1247 was fitted with floats for tests.

In the Far East the Mk IIs of No 36 Squadron continued to operate from Selatar on Singapore Island. As the only Horsley squadron overseas there was no need for a unit distinguishing marking, only the allocation of a letter to each aircraft for individual identity. There was a heavy rate of attrition of these S-serialised torpedo-bombers. No 36 Squadron, while still in Britain, had S1244 crash in the Firth of Forth and S1245 crash into the sea. In the Far East S1444 was the first to go in a crash in Johore in 1931 followed by S1437, S1445, S1449, S1601 and S1606 either

continued on page 584



# The Tiny Russian

Tony Little describes how to build the T60 for 1:35 scale... or 1:76 too!



The character of the diminutive T60 is well captured in this model, which is straightforward enough in scratch-building terms. Troops in snow camouflage stand in the background.

For some time now I have been trying to find time to fit in the building of a range of Russian AFVs from World War II and I have finally achieved it. So here is a blow by blow account of how you can scratch-build a T60, prefaced by some historical facts and technical detail about the vehicle.

## Soviet light tank development

The Red Army that faced the might of the German onslaught in June 1941 is believed to have consisted of 3,500,000 men, 12,000 aircraft and 24,000 tanks. The main trouble was that apart from the stubbornness of the individual Russian soldier (not necessarily found in the soldiers from other Soviet Republics within the Red Army), there was in 1941, very little tactical or strategic skill. This situation had been heavily influenced by two things. The first was that the pre-war Stalin Purges had depleted all levels of the armed forces of skilled and effective officers and technicians, many of whom had been permanently liquidated or, if lucky, banished to the furthest regions of the Soviet Union. Some of these men were to be recalled. Secondly, the Purges had not only been aimed at the military forces — they had affected every branch of life and this had caused a slow down in the 1938 armament modernisation programme that should have been well under way by mid-1941, but, in fact, was only just moving. The result was that in 1941, the Germans were met by an obsolete tank army which operated not as men such as Tukhachevsky, Yakir and Alksnis had intended, in large mechanised brigades (based on the writings of Fuller and Liddel-Hart), but in small infantry bound

units in a manner which was considered to be 'non-bourgeois', a reaction against the earlier and now unacceptable Western doctrine.

Soviet tanks could be divided into three groups, the heavy, medium and light tanks. The T60 which fits into the last category first appeared in 1940 and was an example of a tank that was to disappear from nearly all the armies in the World in the face of opposition from armoured cars and

medium tanks. It was not to reappear until 1955 in Russia and considerably later in the West, by which time the 'light' tank was considerably heavier and deadlier than its ancestors of the 1930s and 1940s.

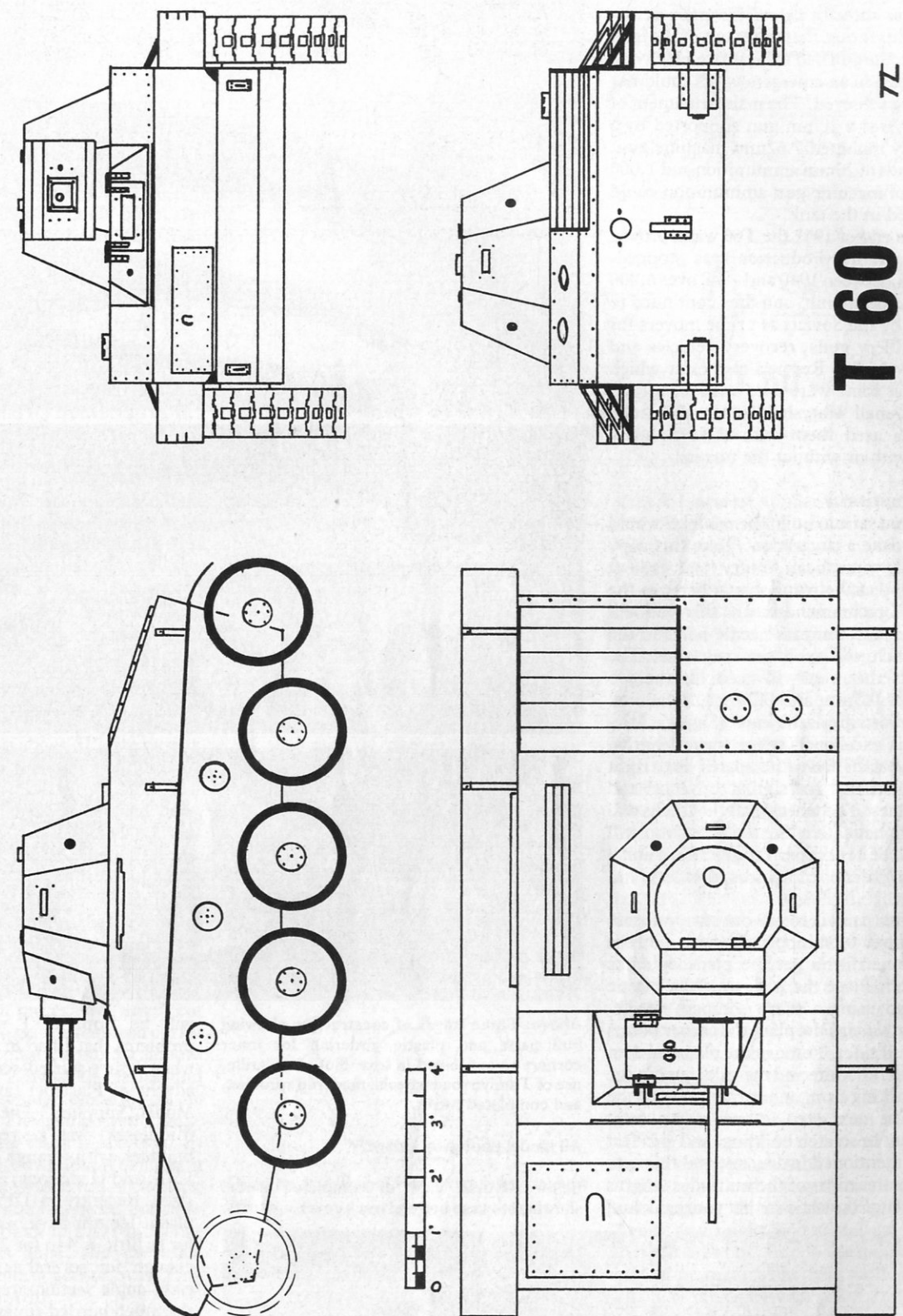
The Soviet's interest in light tanks had been symbolised by the purchase of Carden-Lloyd light tanks from Britain at the start of the 1930s as part of their plans to develop vehicles fitted to the needs of Red Army, and with which to develop the ideas of the Tukhachevsky Group. It seems that overseas purchases were also encouraged in order to obtain tanks that could be easily taken apart. These then provided ready-made plans from which jigs could be made to enable Russian industry to mass produce 'copies', for at this time there could have been few engineers or designers who could be spared from the Five Year Plans to work solely on tank research.

The light tank series started with the T27 and the series went on to include the T37, T37A, T38 (all of which were amphibious) after which there was a considerable change in design, for the following T40, 50, 60, 70 and 80 were non-amphibious except for the T40. The intended role of all these vehicles was reconnaissance — speed was essential and so armour and firepower were light. The T50 was a 'heavy' light tank but was not a success and few were built. The earlier T37 and T38 by and large saw little

'It says part 60 is optional'... or that's what these perplexed looking workmen could be saying as they carry out final inspection of completed T60s in the yard of a Russian factory in May 1942. Useful details may be seen in this close-up (Soviet Official).



Full-size drawing for 1:35 scale. Take measurements direct for scratch-building. Scale of feet is included. Drawn by Tony Little.



action but those that did were soon wrecks. The T40 to 80 built during the period 1930-1942 also proved ineffective as they were completely outclassed by the speed, armour and firepower of the Pz IIIs and the Pz IVs. The role of the light tank had also been superseded by the ubiquitous success of the 'tridsatchetverka' — the T34. To some extent it is surprising that the Russians continued to develop light tanks as they had proven that the heavier guns of

the BT5 and T26 could easily dispatch the light Italian and German tanks on the battlefields of Spain during the Spanish Civil War. Although light tanks proved to be outdated by 1937, the Russians continued to develop and build them.

The T60 developed out of the line of amphibious tanks, was one of the tanks to come out of the Soviet Modernisation Programme. It weighed 5.8 tons and the 85hp engine gave it a top speed of about

27mph. The tank's armour of a plate construction and riveted together, ranged from 7mm to 20mm. The suspension consisted of four torsion bar-mounted road wheels and the drive sprocket was located at the front. The wheels were of two types — either a concave disc type or a six spoked wheel. The T60 carried a crew of two, the driver and commander/gunner. A two-man tank has never proved successful, and in the tight confines of the T60, little could be



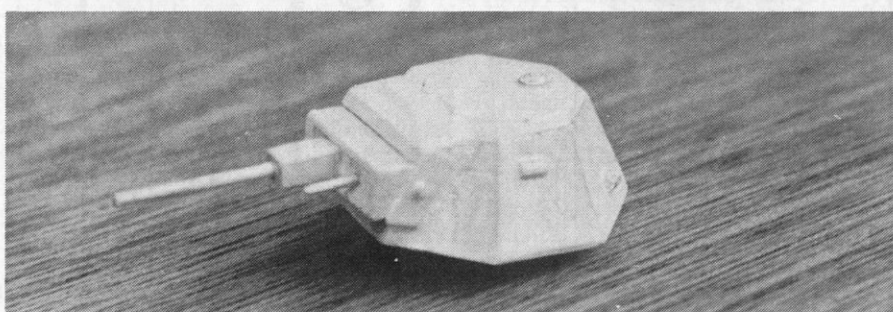
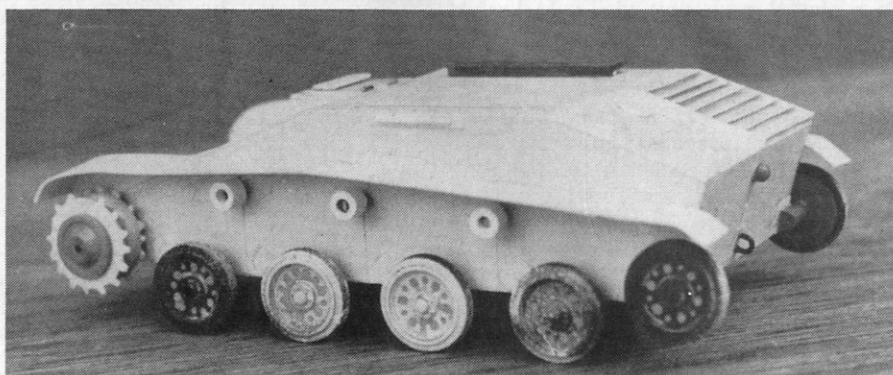
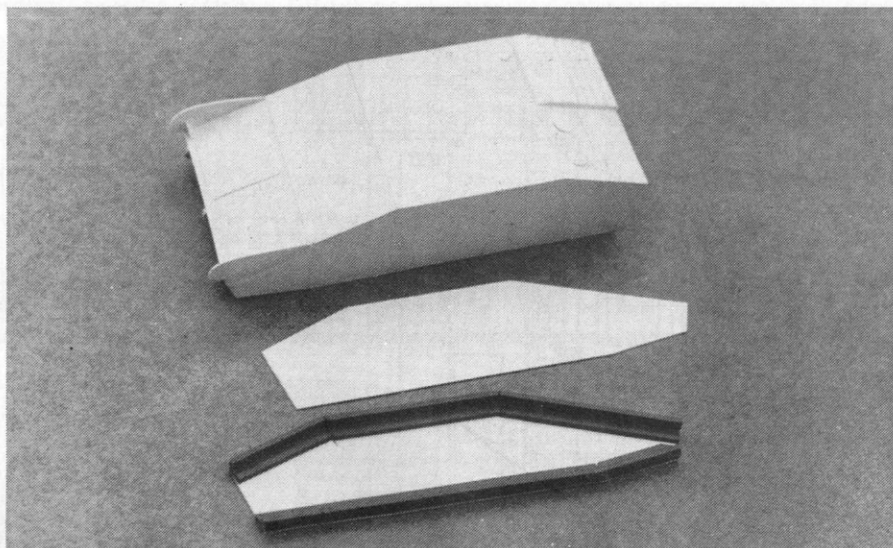
achieved. The commander's entry/escape hatch was in the turret top and the driver's hatch was directly below the main armament. This meant that to get out of the tank or into it, the gun had to be at 10 o'clock or 2 o'clock and in an emergency this could not always be achieved. The main armament of the tank was a 20mm gun supported by a co-axially mounted 7.62mm machine gun. 750 rounds of 20mm ammunition and 1,000 rounds of machine gun ammunition could be stowed in the tank.

By the end of 1942 the T60 was a proven failure and its production was stopped, although between 1940 and 1942 over 6,000 T60s had been built, and they continued to be used by the Soviets as prime movers for light artillery guns, recovery vehicles and supply vehicles. Records also exist which show that some were used without turrets to carry small 'Katysha' beds, and that the Germans used them with their Security forces, with or without the turrets!

### Construction

Before you start to build the model, I would like to make a suggestion. Take this copy along to your local library and take a photocopy of the plans shown here, as the method I recommend means that you will need to make compass needle holes in the plan which will spoil the magazine! The materials that you will need for the job consist of 0.5mm and 0.2mm plastic card and Microstrip plastic card (Slater's Microstrip is excellent), spare sprue lengths, odds and ends from the spares box, right angled Plastruct (or similar product) and liquid glues. The wheels and the tracks will be mentioned later. The tools that you will need will be a very sharp craft knife, a metal rule, two pairs of compasses, dividers, and tweezers.

The first step is to cut out two hull side pieces from 0.5mm plastic card. This is easily done if you get the plan copied as suggested. Place the plan over the plastic card, and using a sharp compass needle, mark out *through* the plan, the corner points of the hull sides. Remove the plan and then with the craft knife and the rule, cut out the sides working from one corner point to the next. The next step is one of the most important in scratch building, and is in fact seldom mentioned in articles, and this is to fix along the edges of the hull sides lengths of right angled plastic so that your tank hull



Above: Three stages of construction showing hull parts and plastic girdering for inner corners as suggested in text. Note rear grille, use of Tamiya road wheels, made-up sprocket, and completed turret.

All model photos by author.

Below: Overall view of completed model showing stowage box and track cover supports.



will be 'square'. I well remember the problems that I had in getting square joins when I first started scratch-building. The advent of Plastruct (available from EMA Model Supplies, The Centre, Feltham, Middlesex) was a great help to scratch-builders, with a range of plastic lengths in L, T, and H sections, and all in a variety of sizes. Recently in DIY shops 'L' section plastic lengths have been available and this for as little as 44p for 2m, which should be enough for several tanks. Both types of right angle section are ideal for achieving the much needed square edges.

Once both hull sides have been edged, you can add the hull plates. These can be marked out on the plastic card either individually, or in a long continuous strip — the latter idea possibly will lead to greater accuracy. Some of the plates show individual rivets, and these can be shown on the card by embossing them on the underside of each plate with the blunt compass needle. When doing this place the plastic card on an old magazine and the rivet detail will be quite clear. There are other methods of doing this, but I think that this is the safest. Once embossed, each

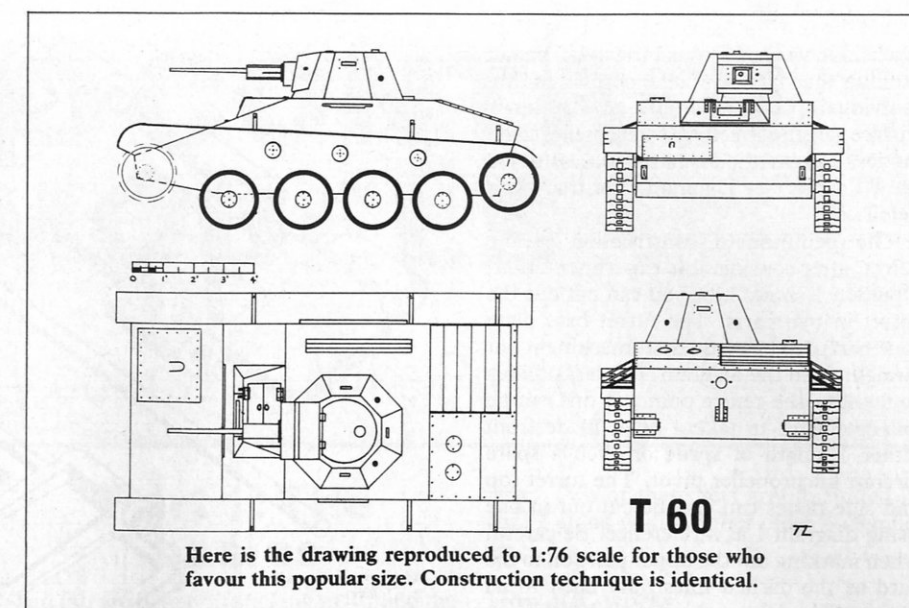
plate can be added individually. All parts should be fixed with liquid glue.

Now the hull detail can be added to this strong hull box. Start by building up the rear exhaust grill from plastic strip. This is quite easy to do but you must use tweezers to handle the pieces. All the photos that I have seen of the T60 show no other sign of external exhaust system. The grill seems to have the cross pieces set at an angle of about 30 degrees from the plane setting of the rear engine hull plate. On the same plate, two inspection hatches can be added from plastic card punched out from the sheet card with a paper punch. These too, need to be rivet embossed. The large front inspection hatch can be added from 0.2mm plastic card next on the front glacis plate. From here move to the driver's compartment which is located in the top centre of the glacis plate and build up from scrap card. I suggest that you start first with the top and front plates of the compartment, and then these two are dry, add the side pieces. On to these parts the driver's escape hatch and the vision port can be superimposed from plastic card with the necessary hinges from scrap or Microrod plastic. Some modellers might suggest that these features should be etched into the card before the parts are cut out — this is quite right on some models but on this one I have always found that the thin card hatches always give the 'right' effect, and this is what most modellers are looking for, particularly when certain details are only vaguely known about. (Please purists, no letters, this is such an old argument).

The next stage is the addition of the track guards. Using the method detailed here, you will have to first add the small sections to the front of the hull sides where the track protrudes above the glacis plate and has to be supported. (If you are very careful, you can mark these out on the plastic card as parts of the hull sides — it does require very careful cutting, but at the same time eliminates this instruction). Once these two small but important pieces have dried, cut out the tracks and to get the required curl at either end, roll the plastic around a smooth round pencil. This is by far the easiest and safest method to get small pieces of plastic to take up a curve. The change in the angle along the run of the track is achieved by scoring the track with a knife and bending it downwards. With this done you can add the tracks, again using liquid cement, but it is a good idea to hold them in place for a few minutes. With this done, add the track support brackets from spares or by making them out of plastic strip.

And so to the wheels and the tracks. Start with the return rollers, which are made from tube section Plastruct mounted on sprue axles. You can of course use suitably sized wheels from the spares box, which will almost certainly have to come from a kit of another scale, or you might be able to find other oddments to make these small wheels from. The width of the return rollers is 3mm. The four road wheels are all the same diameter.

When scratch-building, all modellers have difficulty in making their own wheels and there seems to be no easy answer to this



problem. Make no mistake, even the so-called experts often have to make do

with the nearest similar item, rather than take the enormous amount of time that it takes to make a set of 100% accurate wheels. On the T60, as already stated, there were two types of road wheel used, the concave disc type or the six spoked type, and on this model I chose to use the disc type. I used single wheels taken from an old Tamiya PzIII, with the centres built up with Milliput. These are slightly over-scaled, but recently I checked out if PzII wheels would do the job — they do a better job than the ones I used! Also, for the spoked wheeled version you can use PzI wheels if you happen to have an old Italeri one about. If not Esci's Demag D7 road wheels carefully filed will do. You can also make wheels out of carefully selected buttons. The road wheels are all mounted on short lengths of sprue which are filed flat on one side and can be fixed to the underside of the hull, with the rear idler wheel being mounted on the rear hull plate. Again, this is not totally accurate, as torsion bar suspension units were usually housed inside the hull, but the result here is most effective, putting the wheels in the correct position above the ground. The circular ends of part of the individual suspension system can be made out of card punched out on the paper punch.

The most complicated construction of this stage is that of the drive sprocket. Again, you might find something suitable in the spares box, but on the model here, it had to be made. The plan only gives the diameter of the drive sprocket, but diagram No 2 gives you the enlarged detail. You will need to mark out the circle for the sprocket as shown here, so that you get sixteen sprocket teeth with each drive wheel having two sprocket wheels. To cut the outer diameter from the card, use drawing dividers, but it is possible to buy a special compass cutting attachment, and then the teeth have to be cut individually with a fine sharp craft blade.

So to the tracks. As with wheels, most AFV scratch-builders do not relish making their own tracks as they are even more difficult than wheels, and so it is back to the

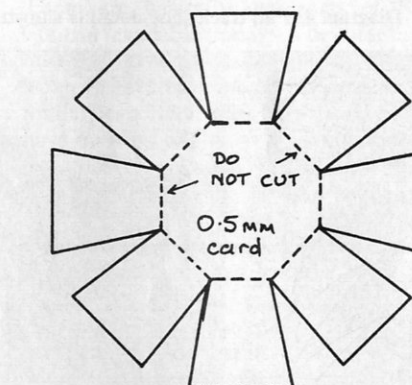


Diagram 1: Use this full-size template (1:35 scale) to make turret top and sides. Score dotted lines.

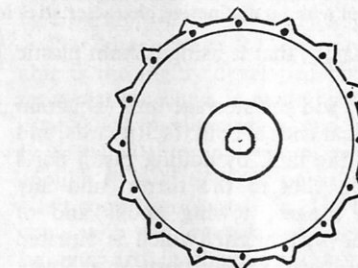


Diagram 2: Enlarged view of sprocket to show detail.

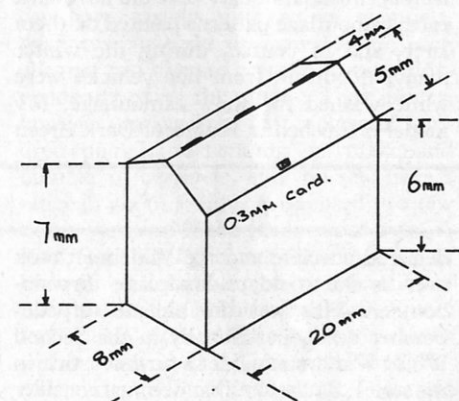


Diagram 3: Stowage bin shape and construction is complex, but this sketch (not to scale) shows dimensions and details.



spares box. If possible use PzI or PzII tracks. I have used some of the nylon parcel binding that you can come across, adding individual plastic triangles to the inner surface of the tracks to represent track guides. This method is fairly successful for the BT tanks (see Diagram 4 for track link detail).

The penultimate construction is the turret. After considerable experimentation, Diagram 1 shows how you can cut out the turret in two parts. The turret base plate (one part) can be made first, marking it out straight from the diagram. It is a good idea to mark in the centre point, as this can be enlarged later to take a pivot made from either a length of sprue or even a spare aircraft kit propeller pivot. The turret top and side plates can also be cut out in one using diagram 1 as a reference. Be careful when marking out the upper plate on to the card as the dashed lines only need to be scored. When the part is cut out bend down the side plates and cement one to another and then finally to the base plate. On to the front of the turret, add the gun mantlet, made entirely from plastic scrap. You will need to file down the top front of the turret

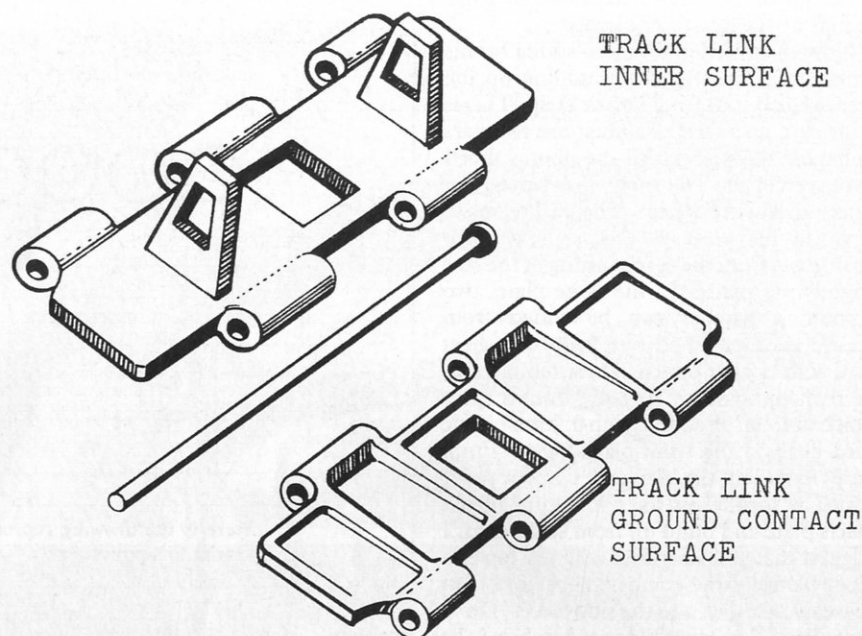


Diagram 4: Full track shoe detail is shown in this diagram from the original manual.



Two views show the completed model with its distinctive characteristics including the offset turret.



to achieve the slight slope to the upper gun housing behind the mantlet. The mantlet is made separately from the outer housing and I suggest that you make it from a suitably shaped piece of plastic, square in section, that can then be filed down to fit the angle of the turret. On the model shown here, the gun has no vertical movement, although of course the original tank did! With the mantlet in place, the outer housing can be made up from scrap card. The 20mm main armament and the co-axial 7.62 machine gun can also be made from scrap plastic rod and square section plastic from the spares box. The commander's hatch on top of the turret can be made in the same way as the

driver's hatch, that is using 0.2mm plastic card. Finally, add the stowage bins (Diagram 3) on the rear ends of both track guards, and complete the tank by adding pistol ports and vision slits to the turret, and any forgotten hinges, towing hooks and of course the searchlight, which is situated next to the driver's vision port. Most Soviet tanks were painted dark green for the basic factory finish, although some did have dark earth camouflage patterns painted on them later, and of course, during the winter many, if not all, front line vehicles were white washed for snow camouflage. My model is finished in Humbrol Dark Green

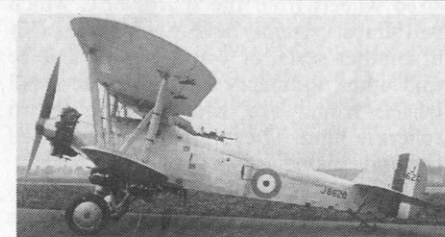
(HB1), and suitably weathered with Humbrol Dark Earth (HB2). There are no markings added to my T60, but may I recommend *Military Vehicle Markings Part 2* by Terence Wise (published by Bellona) and the excellent Osprey Vanguard book, *T34* by Steve Zaloga and James Grandensen, both of which carry information on Soviet tactical and national markings and detail on the many slogans found on Soviet tanks during World War II.

I hope that the instructions detailed here will enable you to expand your collection of Soviet tanks easily and with pleasure. Good scratch-building!

## Torpedo Bomber Colours

crashing in the sea or ditching. S1438 crashed on take-off, S1441 undershot landing at Penang and S1605 crashed at Bukit Bintang. In mid-1935 the Vildebeest started replacing the Horsleys at Singapore, by which time the abolition of rudder stripes had been in effect for almost a year. A reserve of Horsleys were kept in the UK and Singapore until January 1937 when the Mk II, the final Horsleys in service, were

declared obsolete and the Vildebeest took over as the standard landplane torpedo-bomber. This was the biplane torpedo-bomber used operationally in the Second World War, a subject for a further article in the series; but before that we must consider in the next episode the many biplane experimental types of torpedo-bombers that went on trial before the Vildebeest was selected.



Horsley III under evaluation as a day bomber.

from page 579

# RADIO CONTROL FOR MODELS

An introductory course by Mike Purser

## Part 1: The basics

As a keen modeller since childhood, I can vividly remember how my imagination was caught by the boy in a comic who had a whole army of radio controlled models at his command — tanks, planes, soldiers — the lot! They all had working weapons and all obeyed his slightest wish. Somehow he managed to operate them all from a little hand control box without the least trouble!

Sad to say, when I tried to make my Airfix Lancaster work the same way, I was disappointed to find it was both physically and economically impossible! Nevertheless the appeal of that lovely idea remained as I grew up and took up modelling again. And although a remote controlled army may still be an impossible dream, both the size and cost of modern R/C gear have now shrunk so much that many small plastic kits can now be made to perform realistically for a modest outlay. Not only can the purpose built radio controlled buggies and tanks be made to zoom or clank round your garden, but a great many of the medium sized accurate scale display kits from Airfix, Tamiya, Matchbox, Lindberg, etc., can be converted to make fully operational replicas. However I rather fear that the 1:72 scale polystyrene Lancaster with working guns and bombs may not yet be a flying proposition!

If you have pots of money you can of course go into a model shop and choose from dozens of good radio controlled models, or for about £15 in toy shops, you can buy a ready made car that can do simple changes of speed and direction. However, to someone used to plastic kits with prices ranging from 60p to about £5 the cost and complexity of radio control gear is a bit daunting, while the cheaper R/C toys are a bit too basic in appearance and ability. Perhaps the other major obstacle to using radio control is the mystique and jargon associated with the subject, so to give heart to those thinking of embarking on the hobby this short series of articles will firstly explain what R/C is and how it works, and then describe the building of two very different models; the first model, next time, will be the Tamiya XR311 off-road racer, while the following one will show how R/C gear can be applied to a whole range of smaller kits, using a 1:35 scale tank as an example. Owing to my own experiences of Newton's Laws of Motion, I have not included aircraft in this series — I think that those who want small scale working

aircraft are better off sticking to 'Round the Pole' models where control of the power supply is in the modeller's hands!

### Types available

There are basically two sorts of Radio Control available today: The first is the fairly cheap ready made tank, car, lorry or whatever, which comes in a box ready to go for between £15 and £80. However, as these have no need of any effort from the owner their novelty soon palls. The radio gear is designed specifically for that model, and can rarely be transferred elsewhere, and they are usually designed as eye-catching toys rather than scale models. This type usually rely on low price and Christmas extravagance to sell in huge numbers, but I personally doubt that many last very long. While the cheaper ones use a Forward-Straight/Reverse-Turn method of control, some of the better ones at the top of the price range have fully independent and variable control of steering and speed.

The other type of R/C commonly available is the highly developed high quality universal set which is made by a few well established manufacturers, and which can be installed into any type of model large enough to hold the four or so matchbox-sized components (see Fig. 1). These sets come with rechargeable batteries and can be extended in their versatility by such extras as sail winches for yachts and aircraft wheel retracting servos for big planes. They can have various numbers of channels, from two to eight or more, where each channel can operate a control quite independently of all the others. Their prices, however, range from £50 to several hundred pounds, depending on make and number of channels, and the sets have a range of about a mile, as opposed to a few dozen yards with the ready made toys. A very encouraging recent development of last year or so has been the proliferation of two channel sets (without batteries) at very low prices — about £35 — and sometimes without servos, the Transmitter and Receiver are sold for as little as £15. These sets have appeared with the boom in sales of off-road buggies (see next time) while the basic Transmitter and Receiver sets form the basis of the kit conversions described

later. Two of these sets are illustrated in Fig. 3 along with a rather older 4 channel set.

### How R/C works

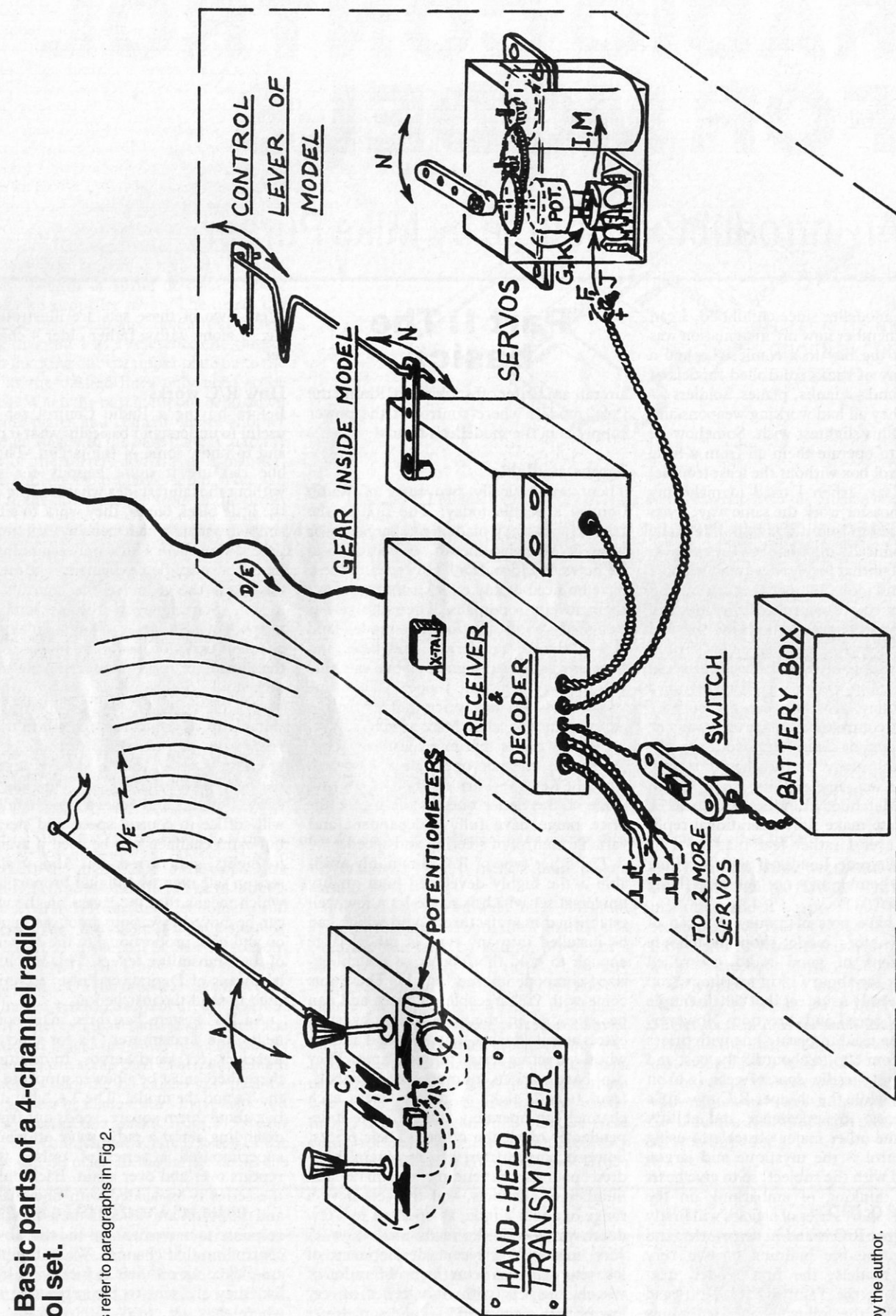
Before buying a Radio Control set it is useful to understand basically what it does, and to know some of the jargon. Though one can use it quite happily for years without the faintest idea what is going on in the little black boxes, they work to a fairly simple system which can be exploited in several ways with a little understanding: So here is a simplified explanation of method most sets use to move the controls in a model. Starting with the obvious, the purpose of a R/C set is to put an imaginary, obedient operator inside the model to help the illusion of reality that a moving model presents. To achieve this one must first have a model which will go like the real thing with its control levers within it. R/C gear is put in and linked to these control levers so they can be moved as required by the operator of the R/C set some distance away. For cars and boats a two channel set will suffice to control speed and steering, but extra channels can be used if available for lights, gun turrets etc. Almost all the sets on sale now are 'Digital Proportional', which means that the levers on the model can be moved by various amounts, (not just on and off), proportional to the movement of the Transmitter levers. This is achieved by means of Digital, or Pulse, techniques used to send the instructions.

An R/C system has three main components, the Transmitter (Tx for short), the Receiver (Rx), and Servos. In addition to these there must be a power supply in both the Tx and the model. The Tx, a hand held box about 20cm square, sends out from its extending aerial a radio wave on which is superimposed a series of pulses which repeats over and over again. Each pulse in the series is associated with one channel, and the pulses are varied in their duration in response to movements of the thumb-stick controlling that channel. When the pulses are picked up on their carrier wave by the Rx, they are sent to the respective servo where they are 'read' electronically. The servo then uses its small internal motor to move its output lever to the position instructed, thus moving whatever control is linked to the lever. Although the electronic systems within these components have taken years of effort to develop, the way

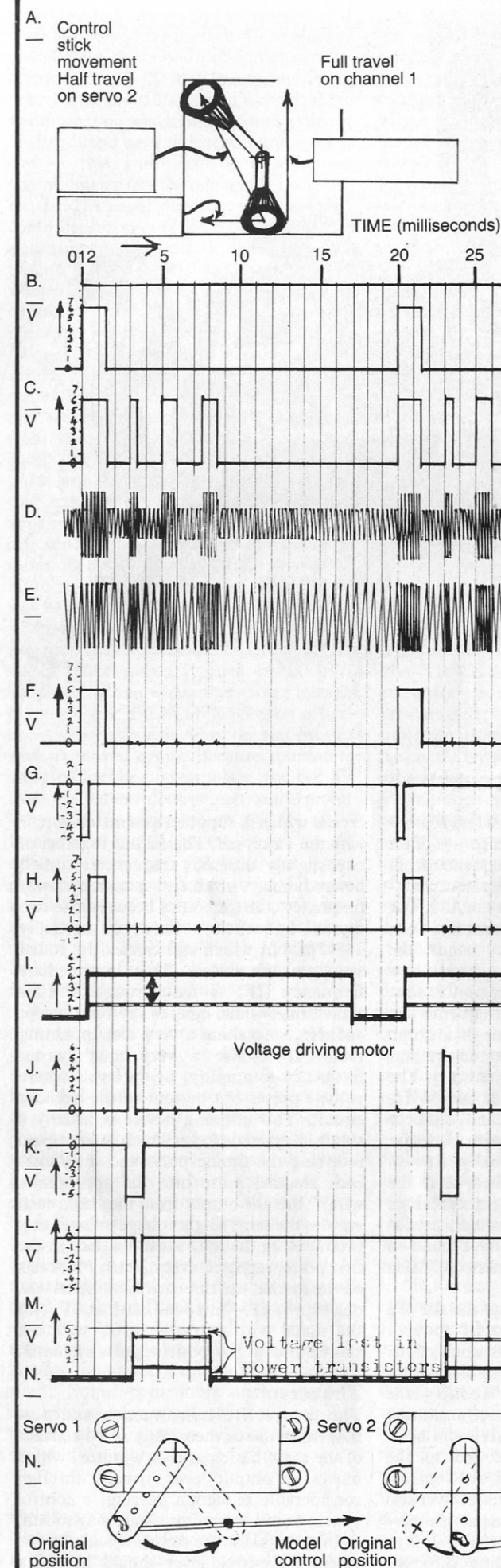


**Fig 1: Basic parts of a 4-channel radio control set.**

Key letters refer to paragraphs in Fig 2.



Drawings by the author.



**Fig 2: How control information passed from the operator to the model.**

Paragraphs refer to letters on Fig 1

- A. Physical movement of the control sticks or their trim levers alters the potentiometer resistance, and hence the pulse width.
- B. Repeating voltage pulse associated with first control channel; the duration of the pulse depends on the control stick position, varying between  $\frac{1}{2}$  and  $1\frac{1}{2}$  ms.
- C. The pulses from all four channels added together in sequence; First has 'fully up' signal, next is 'fully left' and last two sticks are in central position.
- D. Pulse sequence transmitted as Amplitude Modulation of the carrier radio wave which is transmitted from the ariel.
- E. Alternative method of transmitting pulses by Frequency Modulation of the normal wave radio frequency.
- F. First pulse of each group separated out in the receiver and reverted to voltage form, and sent down wire to servo No. 1.
- G. Pulse generated within servo, synchronised with start of pulse from receiver; width of this pulse depends on servo output lever position, controlled by a potentiometer on the lever shaft.
- H. Difference pulse formed by adding pulse (F) to pulse (G); depending which is the longer, this can be positive or negative.
- I. Power pulse produced by the servo amplifier in response to difference pulse; this is sent to the side of the motor that makes it turn to reduce the length of the difference pulse, by moving the servo arm in the required direction.
- J. Second pulse of the sequence sorted by the receiver and sent to second servo.
- K. Internal pulse of second servo; in this case the arm is in the central position.
- L. Second servo difference pulse; note that this is negative, and a much shorter one than (H), requiring output lever to move the other way, and not so far, as servo 1.
- M. Power pulse to second servo motor, giving slower drive, in the opposite direction to the power pulse in servo 1.
- N. Motors rotate the servo output arms through reduction gearing, until levers are in the desired position; then the difference pulses will disappear and the motors stop.





Fig 3: A selection of radio control units.

they operate is really very simple, and is explained using Figs 1 and 2 as guidance.

Firstly the operator manipulates his control levers on the Tx from side to side and/or up and down; these levers are connected at their bases to variable resistances or potentiometers (pots), which can also be adjusted by little trim levers beside the control levers. The pots are included in pulse generating circuits so as to vary the duration of the pulses. These pulses are sudden changes of voltage and usually last from  $\frac{1}{2}$  to  $1\frac{1}{2}$  milliseconds (ms) depending on pot position. The pulses from each stick are then strung together in a set sequence, sometimes with a much longer timing pulse at the beginning of the train, and then the sequence is put on to the carrier radio wave generated in the Tx to be radiated out from the aerial. The pulses are generated at a rate of about 50 each second, so to all intents and purposes the position of each control stick at any moment is being continually broadcast. As the 'frame repetition rate' is about 50Hz, it means that each sequence of pulses starts 20ms after the last, so allowing time for the pulses, and gaps between pulses — ample time for up to about 8 channels each frame. This method of coding several different channels of information on one carrier is known as 'time multiplexing'. The pulses can be added to the carrier wave by one of two means, Amplitude or Frequency Modulation: AM is making the carrier wave louder or softer (or completely on and off) in time with the pulses, while FM is altering the pitch slightly. FM is

gaining popularity as it is considered rather better at ignoring interference — other radio signals on the same frequency from other sets, CB Radios or other sources — but FM sets cost rather more than AM. The frequency of the carrier wave can be in one of three permitted frequency bands, the traditional one being 27MHz, which is now also used by legal (and illegal) CB sets. Within the band the precise frequency can be chosen by plugging in one of a dozen slightly different crystals so that several sets can be used at once in close proximity. The two other bands now permitted are 35MHz for aircraft only, and a UHF band, but both need more expensive equipment. However both these bands are virtually free of interference, and so spare their users the sight of their models having unexplained fits! Since cars and boats are usually used at fairly close range, however, I have found no need to abandon the old fashioned 27MHz AM sets so far.

The Rx is a small unit, about the size of a matchbox, which has an aerial about 1 metre long (this length is a fraction of the radio wavelength used, and so should not be altered as reducing it reduces the sensitivity of the Rx). The transmitted signal, along with all the other radio noise around, is picked up and fed to the electronics inside. There are two separate circuits there, a superhet radio receiver and a pulse decoder: The first takes the tiny varying current from the aerial and adds to it a small signal at a slightly different frequency, which is produced by a second

crystal which is supplied as a matched pair with the Tx crystal. This adding together of two slightly different frequencies, called heterodyning, produces a much lower frequency (the difference between the two crystal frequencies) which is normally 465kHz, but which still carries the coded sequence of pulses. This intermediate frequency (IF) is fed through a filter transformer which ignores anything except 465kHz, so making a very discriminating radio. It is also a very much easier frequency to amplify, up to levels where voltage pulses can be sent to the decoder circuit. This cunning device is usually a single integrated circuit which wakes up on receiving the timing pulse and then sorts each channel pulse into the appropriate wire. Thus the output from the Rx to each servo is the same single voltage pulse as that produced by the individual Tx stick in the first place, repeated every 20ms. Most sets on the market use three wires to the servos, one supply at 5 volts, one earth at 0V, and the signal wire normally at 0V with the short pulses at 5V (positive pulse systems).

#### The servo

The servo receives its instructions and must now make use of them. Any servo consists of the same basic parts — a motor, which moves an output lever, usually through considerable reduction gearing, a control system to tell the motor which way to run, an input signal so the control system knows where the output lever should be and a 'negative feedback' loop through the con-

trol system, motor and lever so that the control system can stop the motor when the lever has moved far enough. In a standard model servo the motor is a high quality 3V motor, driving through precision nylon/brass gears (about 250:1 ratio is common) to a stub shaft on which can be fitted a variety of shapes and sizes of levers. On the other end of this stub shaft is a miniature potentiometer like the one on the transmitter stick. A small printed circuit board of control electronics completes the unit, and all is contained in a plastic case with screw mounting lugs to take the reaction from whatever the lever is attached to. The control circuit uses the width-modulated input pulse in an elegant way to control the motor: When the pulse arrives another similar pulse is generated, but with a duration which depends on the output arm pot position at that moment. By taking one from the other, they mostly cancel out except for a brief 'difference pulse' if one pulse lasts longer than the other. Whether this is positive or negative depends on which signal is the longer. Although this difference pulse is tiny both in power and duration, it can be amplified and 'stretched' up to nearly 20ms and drive the motor one way or the other. The motor is wired so that it drives the output lever, and pot, in the direction that reduces the difference pulse — in other words it goes where it is supposed to, and when it gets there it stops because there is then no longer any difference pulse to drive it, until the transmitter stick is moved again. Because transistors are used for the power pulses, the full 5V from the battery does not get to the motor — usually the power pulses give about 4V in one lead and 1V in the other. As the difference pulse gets very short the power pulse also shortens from about 17ms to about 5ms, out of every 20ms, so slowing the motor down. This method of motor control is called Pulse Width Modulation and is very efficient on power, as well as very precise in operation.

While all servos work on these principles, the signal from the receiver can be used in other ways, to directly control electrical equipment by electronic means, instead of using a servo to work a mechanical switch or speed controller. Several plug-in electronic speed controllers are now available for about £30 and all work basically on the system of expanding the pulses from about 1ms in 20ms, to vary from 0 to continuous as power pulses. Some have features such as reverse, or dynamic braking (using the motor being controlled, to recharge the drive batteries thus slowing down the model). One drawback many electronic controllers suffer is that the transistors use up about  $1\frac{1}{2}$ V leaving much less for the motor if only low voltages are used. Some controllers incorporate a mechanical relay which switches in at full power which gives a similar effect to switching in reheat in a jet fighter!

#### Points to watch

Coming to the practicalities of installing R/C sets, there are so many books and magazines devoted to this that I will

mention only a few points that seem to be most important. Firstly protection: Modern sets are incredibly robust and reliable but they intensely dislike salt water, vibration, excessive temperature and wrong voltages. The plastic cases they come in are splash- but not water-proof, so for outdoor models seal everything in polythene bags with a sachet of silica gel if possible to prevent condensation. If the gear does get salt water on it disconnect the battery immediately, rinse off the salt with fresh water and dry with a hair drier or car heater. Vibration can be minimised by packing in foam rubber, though servos must be rigidly fixed to the structure of the model or they will not be able to operate their controls effectively! Still, the rubber grommets supplied are rigid enough, as in many cases, is double sided sticky 'servo tape' which incorporates a thin layer of foam. Possible sources of heat are direct strong sunlight, motors, soldering irons, etc, so a little common sense is needed. The wrong voltages don't happen very often, but when they do they tend to be pretty final! Short circuits, connecting wires backwards, even charging batteries the wrong way can do nasty things to transistor circuits, but once again they can be avoided with care. Despite these exhortations to look after the gear, in later articles I show it removed from the manufacturers cases (and the guarantee cover) for installation in very small models. Obviously in these circumstances the utmost care must be taken with the circuit boards, to avoid short circuits or broken leads — there is little you can do with a transistor with only two wires unless you collect strange diodes! Other points to watch on installation are the mechanical links from the servos to the model controls, to ensure that they do not bind at any point in the full servo lever travel, and to ensure that the servo will not suffer damage from a collision to the control mechanism — say the steering wheels of a fast car. The simplest form of safety device is to make the wire link in the form of a Z so it will crumple on impact but still be strong enough for normal loads (see Fig 1). There are many other 'do's and don'ts' but they are probably best learned as you practise the hobby.

Actually using the R/C set presents few problems, except with aircraft where any little mistake tends to delay further practice for several weeks! Fully charged batteries and switching on the radio in both the model and transmitter are obvious, but easily overlooked, prerequisites, and a wise test is to carry out a range check with an assistant to check that the controls operate at a reasonable distance before letting the model go. For boats, a rescue boat, or at least a weighted fishing line, is a useful thing to have to hand. How you arrange the various controls is up to you, but if you belong to a club it is sensible to use the same stick for steering that everyone else does, to avoid mistakes when borrowing models. Lastly, if it does go wrong, try the obvious things first — it is nearly always simple things like loose plugs, or dud batteries, or something not quite switched on, that are at the root of apparently dreadful problems!

New Books

**Coastal Support and Special Squadrons of the RAF**, by J. D. R. Rawlings. *Janes Publishing Co*, 238 City Road, London EC1. £17.50.

If you are familiar with that classic reference work by John Rawlings, *Fighter Squadrons of the RAF*, you will know what to expect with this new volume. Here is a round up of all the odd squadrons not included in previous fighter and bomber coverage, and naturally that takes in Coastal Command, Transport Command, their predecessors and successors, plus reconnaissance squadrons of all sorts, ASR squadrons, target towers, ECM, and all sorts of other odd units which have existed over the years. The meticulous research and the format follows the style of previous books, including in many cases even a list of unit COs. Badges, operations, bases, code letters, aircraft types, and all relevant changes, are included in encyclopaedic fashion, and it is a book to dip into for a fascinating read as well as a definitive reference work. The selection of pictures is most interesting, with some good rarities to please modellers seeking the unusual. Just two of many good examples — the Martin Mariners of 524 Sqn in 1944 and 28 Sqn operating the Hawker Audax on the NW Frontier until 1942, in full camouflage and markings of the period!

**Warbirds Illustrated, 5 & 6: The Luftwaffe 1933-45**, by Alfred Price. *Arms & Armour Press*, 2-6 Hampstead High Street, London NW3. £3.95 each.

Here are two more in this pleasant series of soft cover books which are packed out with over 100 pictures, complete with short but accurate captions which in almost all cases identify the unit, date, place, and type with precision, where possible. Some of the pictures are new and/or rare, but others are more familiar. For example most of the colour shots have been seen before, but in these books the units to which the aircraft belong are clearly noted which has rarely been the case in previous books in which they have been used. These, then, are books of great value to modellers, with much valuable visual information in each.

**Renaissance Armies, 1480-1650**, by George Gush. *Patrick Stephens Ltd*, Bar Hill, Cambridge CB3 8EL. £7.95.

This is the second revised edition of a book first published in 1975, and the original book started off as an expansion from some articles which were appearing in this magazine. The book covers the armies of the 1480-1650 period and is most profusely illustrated with contemporary engravings, modern photos, many diagrams and draw-

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# COMBAT COLOURS

## No 16: The Roland DII

by Peter G Cooksley

Quite one of the ugliest fighter types which flew with any nation during the First World War, was the LFG Roland. Its service debut, the DI version, initially flew in July 1916, after which there followed a certain amount of aerodynamic cleaning up, including the replacement of the 'ear' type radiators, a legacy from the Roland CII twin-seat reconnaissance machine.

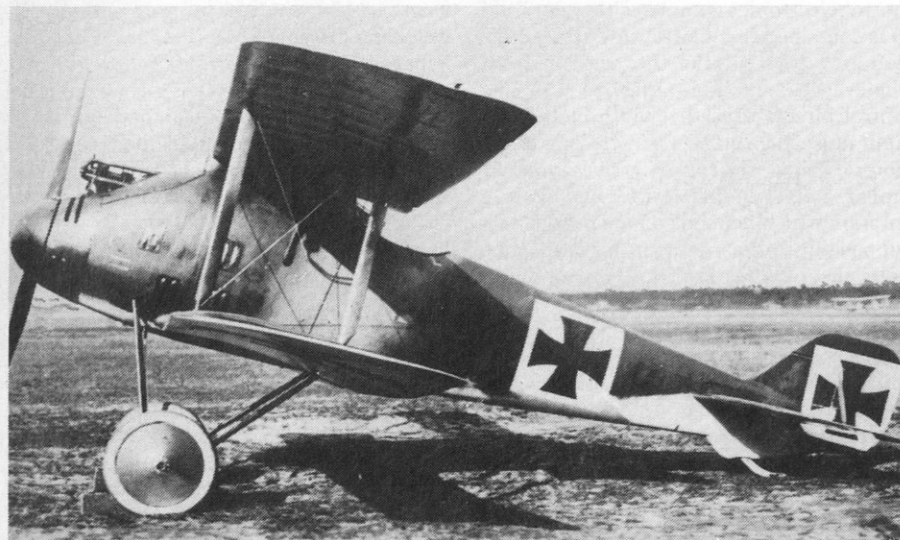
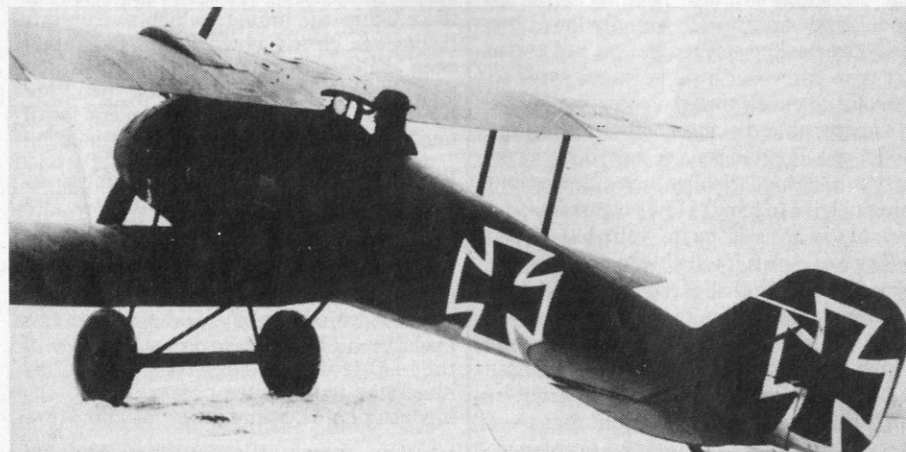
The resultant design was designated the DII which first flew in October 1916 and before long was joined by the almost-indistinguishable DIIa. However, inspection of the actual aircraft would have shown such differences as a modified undercarriage and a fuselage longer by a few inches, points that are practically impossible to make out from photographs.

As a fighting machine the Roland DII found little in the way of popularity among the pilots although its performance was comparable with the contemporary Albatros. Its controls were heavy, a serious disadvantage on a scout machine, so that the type was used for escort work on the Eastern Front rather than over France where if it was used, it was relegated to the quieter sectors.

Even so, there were steps taken to re-design the type along more conventional lines with a normal centre-section, but the promise was short-lived and the DIII version went only into limited production.

However, whatever their variant and the nature of their built-in inadequacies, the Roland was not without technical interest, particularly with regard to the fuselage construction. This took the form of light ply formers over which was a skin of three-ply applied spirally in strips. To the

A Roland in the snow here shows that although the fuselage and tail crosses are only outlined, those on the wings are well outboard and appear against a white square background. Note pilot's helmet, not the traditional leather type but one common in Germany and reminiscent of the old British 'Corker' motorcycle headgear (Bruce Robertson Collection).



This superb view of a Roland DIIa shows many details of use to model builders including the loweres on the side of the cowling that almost completely covers the engine and details of the wing bracing. The wing leading edges were not straight but in fact swept back at about one and a half degrees (IWM — HU1652).

forward end of the light longerons were fastened the lower ends of a pylon supporting the upper wing; thus it was that the whole distance from engine to cockpit was covered in with a consequent loss of forward vision for the pilot.

The wings with their near-square tips were based on the normal two-spar method of construction, the panels having steel-tube compression members. To the rear of each of these ran torque tubes instead of control wires for the ailerons which were unbalanced while the centre-section accommodated the twin radiators.

The tail also provided some interest by the fact that it was supported by a horizontal member on to which the inner leading edges of each section fitted, while the trailing edge was braced to the fin with the aid of steel tubes of streamline section. The

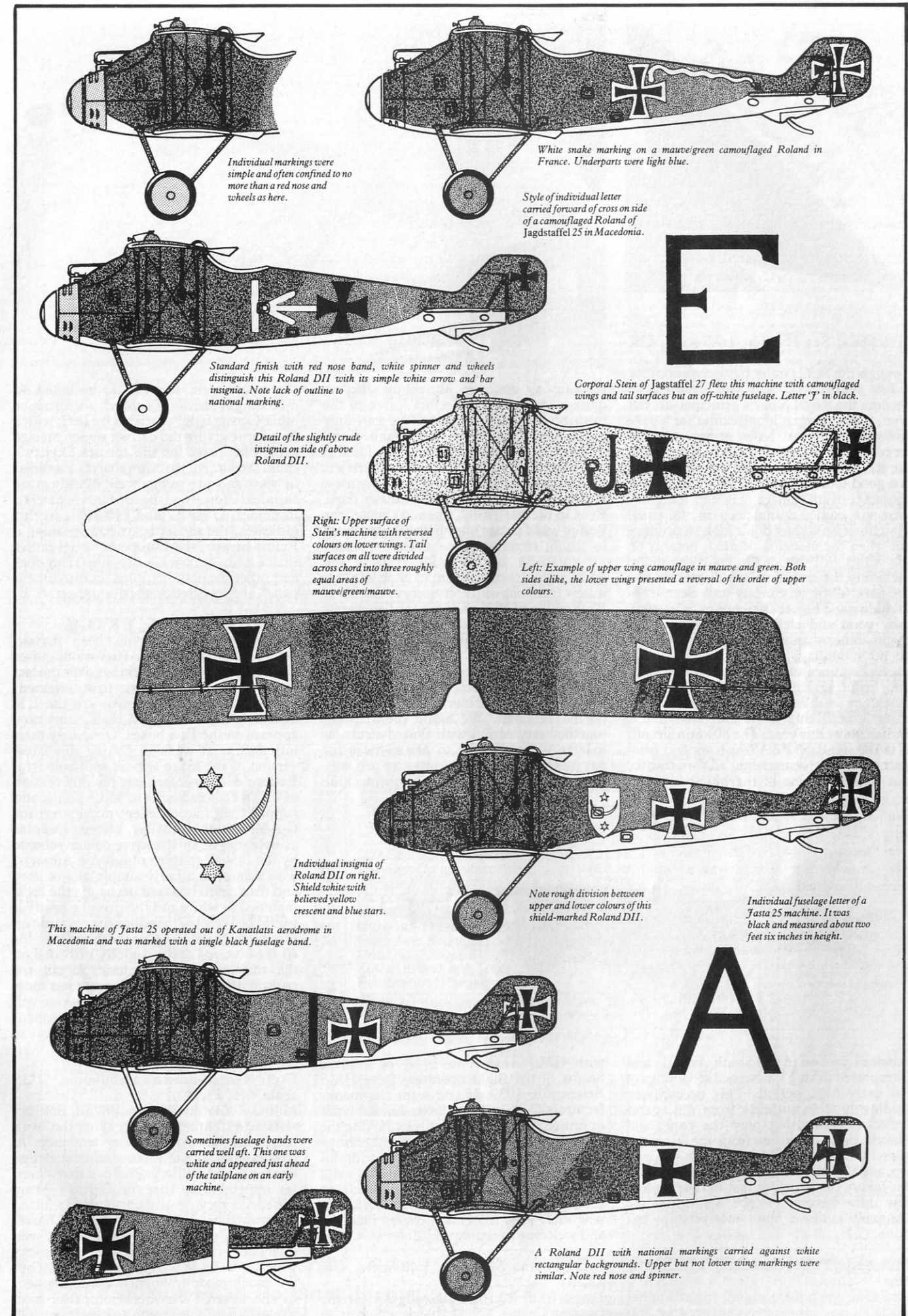
actual control surfaces too were formed of steel tube as were the ailerons.

Mounted each side of the engine cylinders was a Spandau gun, more properly known as LMG 08/15s. They were the sole forward armament, and were considered quite adequate at that time and for some years after. The motor was the well-known Mercedes DIII, a water-cooled six cylinder in-line engine rated at 160 horse power. This had originally been found in the Roland DI and was retained in the DII although in the DIIa it gave way to the similar 180 hp Argus AsIII. However, despite the seeming superiority of this installation it came in for severe criticism from the pilots and if possible the variant was avoided in favour of the slightly-better liked DII model.

Although Roland DIIs were scarce on the Western Front, featuring more in French combat reports than in engagements over the British Sectors, the type was more common in Macedonia even as late as the end of 1917. The earliest machines had been encountered in a very pale grey finish over the fuselage; this colour being in fact little more than off-white, a scheme that had been applied earlier to the CII machines. It was not long before this was replaced by a disruptive camouflage scheme consisting of large areas of dark green and mauve over the upper surfaces while below a light blue shade was carried. National markings on this were almost only of the Pattée form although a few Roland DIIs carried on for long enough to be re-marked with the new straight-edged cross.

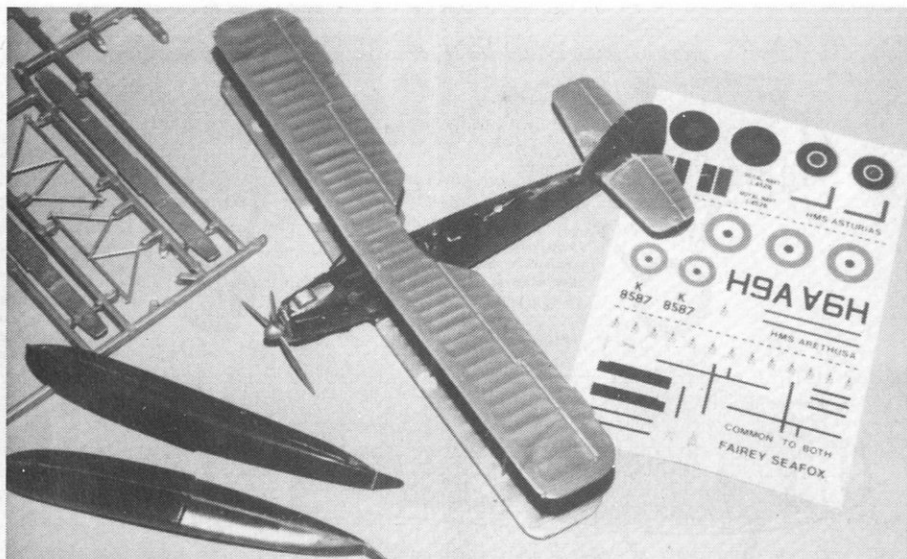
As is true of the majority of German aircraft operating in the East they carried none of the flamboyant markings or insignia encountered elsewhere but instead had

continued on page 596





# New Models



## Matchbox: Sea Harrier, 1:72 scale, UK 85p

Though the Sea Harrier has been about for a few years now, and was destined to become the Royal Navy's principal aircraft type, it has taken a longest time for a 1:72 scale kit to appear. Now, at last, you can forget about converting RAF Harriers to the RN version, for this Matchbox version is a good looker which nicely captures the character of its subject. Though the panel lines are etched quite deep in the usual Matchbox way, they don't look so prominent when the model is painted, notably on the wings. All the small details are there, including the tiny aerials and intakes, and the parts all fit very nicely on a clear set of mouldings. The cockpit canopy is particularly good and clear. There are no gimmicks, other than the usual Matchbox two colour mouldings, and the model should please beginner and expert alike. Markings and painting details are given for the machine of 801 Sqn's CO, and for one of the eight aircraft due to be delivered to the Indian Navy this year. The 801 Sqn aircraft is in the standard FAA finish applied prior to the Falklands campaign, and we painted our sample in one of the blue-grey 'war'

pleasing to discover Matchbox offering quite a specialised collectors' piece in the form of the Fairey Seafox. We can only conclude it must have been planned and initiated in more prosperous days for it is well away from the 'safe' area of modern jets of international appeal which are the most common new warplane kits these days. Even in the late 1930s, when in service, the Seafox was a pretty obscure type, produced as a light reconnaissance aircraft specially for catapult launch from cruisers and battleships. Its main claim to fame was that it flew from one of the cruisers in the River Plate action of 1939 to direct the fire against the *Graf Spee*. In its day it was only one of several types (eg, Walrus, Swordfish) used in catapult flights. However, it was a machine of grace and character and it looks delightful as a model, recalling the wood Skybirds kits of the late 1930s as it perches on its big floats. We found the kit went together very easily, with slotted struts, as in later Airfix biplanes, to take all the terror out of wing assembly. Markings are supplied for a camouflaged 702 Sqn machine

commonly seen. It seems to be based on mouldings previously used to produce other Cessna family variants by Esco, with a new sprue giving the correct undercarriage parts plus parts for the correct Skyhawk cabin layout. All parts are sharply moulded in white and go together well. Markings are supplied for two European registered machines, D-EEPV and PH-MIF. As this indicates, the model is strictly speaking a Reims-Cessna, the European model rather than a home-grown US version. Trim lines and other decorations, plus an instrument panel, are provided on the decal sheet. *C.E.*

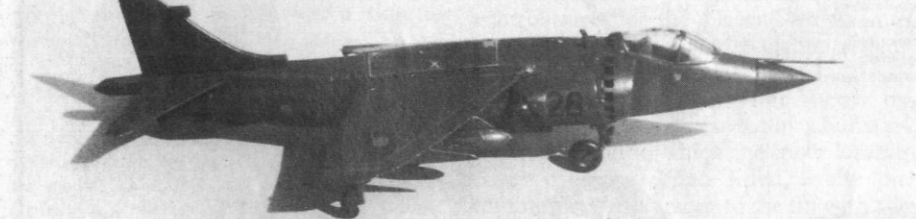
## Esco: DC-3, 1:72 scale, UK £4.45

The Esco Dakota kit has been praised before, and it has appeared in various guises with differing sets of markings over the last few years since it was first released. Humbrol, as is well-known, are the UK distributors for Esco and their name now appears on the Esco boxes. Obviously their influence is at work in getting this latest version of the kit to appear with colourful Eastern Airways markings for this version of Esco's Dakota is shot in white plastic and supplied with an excellent decal sheet for G-AMPO and G-AMRA, veteran Dakotas as operated in an attractive colour scheme by the British concern of Eastern Airways. The scheme is a fairly simple one of grey and white with blue/red decor. As the kit is moulded in white and the parts fit neatly it would be possible to reduce the painting on this model to details, plus the grey areas, for all the blue/red decor is nicely provided on the markings sheet. Interior detail for cockpit and cabin complete what is a most attractive kit. Let's hope that this one will be popular enough for some more imaginative offerings in unusual markings to appear from the Esco firm. *C.E.*

## Esco: Horse-drawn ambulance, 1:35 scale, UK £3.50

Military kits in 1:35 scale do not get released as frequently as they once did. And there has always been a tendency to concentrate on the more dramatic items, like tanks and artillery. Praise to Esco, then, for remembering that the German Army depended very greatly on the horse for its transport need and endless lines of horse-drawn transport were more commonly seen than lines of armoured half-tracks or trucks which were in relatively short supply (but got much more frequently photographed) in the World War 2 period. Esco have already done a German horse-drawn GS

with HMS *Asturias* in 1942, or a silver Seafox of the flight operating from HMS *Arethusa* in 1939. If you want the manufacturers to make more lesser-known types in future, let them know this by buying the kit, rather than just admiring the Matchbox subject choice. Low sales figures for biplane kits and pre-1940 types is the main reason why there are very few left in production and even fewer appearing as new kits. This Matchbox Seafox is a rare and welcome exception. *C.E.*



schemes applied in the South Atlantic and interpreted from TV newsreel screenings of the early May period. This necessitated finding B type roundels from the spares collection and using only the panel and maintenance markings on the kit decal sheet. Obviously this is a kit to be snapped up, and the wise modeller might get several for future construction just in case Matchbox kits become scarce following the company's move into receivership last June. *C.E.*

## Matchbox: Fairey Seafox, 1:72 scale, UK 85p

At a time when the economic recession has made all new kit releases fairly sparse, it is

## Esco: Cessna Skyhawk, 1:48 scale, UK £2.15

Latest from Esco is a pleasing kit for the familiar Cessna 172 Skyhawk which is so

## MODELDECAL DECALS 1/72 SCALE

- BAC Lightnings in RAF service. Mk. 1A 56 Sqn. Firebirds. Mk. 2 19 Sqn. Mk. 2 92 Sqn. Mk. 6 23 Sqn. Mk. 6 5 Sqn. Mk. 6 74 Sqn. All a/c have bare metal finish.
- F-4 Phantoms. VMFA-531 USMC. F-47 USAF. 767 Sqn. Royal Navy.
- F-100D Super Sabres. Triple Ziltch. 20th TFW. 1960. 'Pahokee Tiger'. 307th TFS. 1965. 416th TFS. 3rd TFW. 1966. 309th TFS. 31st TFW. 1968. All four being USAF aircraft.
- A-1J Skyraider. VA-176 USS Intrepid. U.S. Navy 1966. A-7E Corsair. VA-195 USS Kittyhawk. USN 1970. SH-3A Sea King. HS-3 USS Randolph USN 1967.
- RF-101C Voodoo 45th TRS. 1969. F-105D Thunderchief. 357th TFS. 1970. A-1H Skyraider. 6th Spec. Ops. Sq. 1969. EC-47N Dakota. 360th TEWS. 1969. All aircraft camouflaged.
- T-33A WS-50 Luftwaffe 1968. Fiat G-91R/3 LeGS 43 Luftwaffe 1969. F-104G Starfighter MFG 1. 1970.
- Sabre F.1. 234 Sqn. 2 TAF RAF circa 1954. Vampire F.B.5. 12 Sqn. 2 TAF RAF circa 1951. Chipmunk T.10. 2 FTS RAF 1971.
- A-7E Corsair. VA-113 'Stingers'. USS Ranger. USN 1970. AV-8A Harrier. VMA-513 USMC 1971-2. F-4B Phantom. VF-111 N.A.S. Miramar. USN 1971.
- T-33 4 Wing RCAF. Germany 1967. F-35 Draken. 725 Sqn. R. Danish A/F. 1971. Mosquito F.B.6. 4 Sqn. RAF 1949. A-4G Skyhawk. 805 Sqn. R.A. Navy 1969.
- Gannet Mk.4 (COD). Ark Royal. RN 1965. Sea Hawk F.1. 898 Sqn. FAA 1954. Wessex Mk. 1. S.A.R. Flight. Ark Royal 1970. Avenger Mk.6. 831 Sqn. FAA 1958.
- A-4E Skyhawk. VMA-311 USMC. 1968. A-4E Skyhawk. VA-94 USN. 1970. A-4F Skyhawk VA-164 USN. 1969. AD-4 Skyraider VA-65 USN. 1954.
- A-7D Corsairs of 358 TFS. 354 TFW and 40 TFS 'Satans'. 355 TFW USAF. 1972. T-33A. 50th TFW. USAF. 1962. F-86A. 116 FIS USAF. 1951.
- Phantom FG.1. 43 Sqn. 1972. Harrier GR.1A. 3 Sqn. 1973. Lightning F.2A. 92 Sqn. 1973. all 801 and 890 Sqn. FAA. Wyvern S4. 831 Sqn. FAA.
- Phantom FGR.2. 41 Sqn. RAF. 1972. Hunter F.6. 79 Sqn. RAF. 1972. Sea Venom FAW.21's of 801 and 890 Sqn. FAA. Wyvern S4. 831 Sqn. FAA.
- All RAF. Lightning F.2A. 19 Sqn. 1974. Canberra B(I)8 16 Sqn. 1972. Harvard T.2B. 500 Sqn. 1952. Hunter FGA.9. 45 Sqn. 1974.
- Buccaneer S2B. 15 Sqn. RAF. 1974. Hunter FGA.9 58 Sqn. RAF. 1974. Canberra B2. 10 Sqn. RAF. 1956. plus RN and RAF Gazelles.
- Canberra T4. 231 OCU. RAF. Cottesmore 1974. Hunter T7. 4 FTS. RAF 1973 (or 56 Sqn. 1962). Phantom FGR.2 111 Sqn. RAF Coningsby. 1974. Buccaneer S2A. 208 Sqn. RAF. 1974. 1974.
- BAC-SEP Jaguar GR.1. 14 Sqn. RAF. 1975. BAC-SEP Jaguar T.2. 14 Sqn. RAF. 1975. Rep. F-84F Thunderstreak. 314 Sqn. Dutch A/F Rep. RF-84F Thunderflash. 717 Sqn. Norwegian A/F. L.C-130H. Hercules. 721 Sqn. Danish A/F.
- US-2N Tracker. 320 Sqn. Dutch NAS. Javelin FAW. 8. can be finished for either 41 Sqn. or 85 Sqn. RAF. 1963. Jaguar GR.1. 17 Sqn. RAF. 1975. Jaguar T.2. 17 Sqn. RAF. 1975.
- Phantom FGR.2. 29 Sqn. RAF.
- H. Fury I. K5673. 1 Sqn. RAF. Tangmere. 1937. B. Bulldog IIA. K2151. 23 Sqn. RAF. Kenley. 1932. G. Gladiator I. K8027. 87 Sqn. RAF. Debden. 1938. A.W. Siskin IIA. J8959. 43 Sqn. RAF. Tangmere. 1930.
- British a/c post-war serial letters (black). 16 in. 18 in. 20 in. and 24 in heights. Examples of types using these sizes: Sabre, Jaguar, Hunter, Lightning, Vampire.
- British a/c post-war serial letters (black). 30 in. 36 in. 48 in heights. Examples of types using these sizes: Gannet, Mosquito, Phantom, Canberra.
- British a/c post-war serial numerals (black). To be used with Sets 33 and 34.
- British a/c post-war fuselage serial letters and numerals (black). 8 in height, variations in design included to cover various styles. Also includes a few 4 in 'Royal Navy' plus 8 in and 12 in dittoes, and 'Royal Air Force'.
- Phantom FGR.2. 56 Sqn. RAF. 1976. with optional markings for 2 Sqn. RAF. 1971. Sabre F.1. 20 Sqn. 2nd TAF RAF. 1955. Mirage 111E.C.2/4. L'Armee de l'Air 1976. CM170 Magister. L'Armee de l'Air. with optional markings included. F-111E. 20th TFW. USAF Upper Heyford. 1976. as at Greenham Common display.
- Provost T1. 1FTS. XF559 as Sept and April '60. F-84F Thunderstreak. 2nd F.B. wing. Belgian A/F. 1956. Mirage M5F. E.C. 3/13. L'Armee de l'Air 1973. S. A. Bulldog T.1. London UAS and 2FTS RAF. 1974. Vampire FB.9 9 Sqn. RAF. Jaguar GR.1. 2 Sqn. RAF. 1976.
- WW2 British roundels and fin flashes, types A and A1. Type A diameters: 25, 30, 35, 40, 42, 45 inches. Type A1 diameters: 20, 28, 30, 34, 35, 42, 45.5 inches. Fin flash widths: 15, 18, 21 inches.
- WW2 British roundels and fin flashes, types A, A1, C and C1. Type A diameters: 45, 50 inches. Type A1 diameters: 49, 56 inches. Type C diameters: 40, 63 inches. Type C1 diameter: 54 inches. Type A fin flash widths: 9, 12, 24, 27, 36 inches. Type C width: 54 inches.
- F-4EJ Phantom. 302 Sqn. Jap. ASDP plus emblems and serials for 301 Sqn. alternative. Jaguar GR.1. 41 Sqn. RAF. 1977. F-104G Starfighter. Dutch Air Force. choice from either 306 Sqn. 311 Sqn. 312 Sqn. Vlekvk. or 'Dutch Masters'. F-84F Thunderstreak. E.C. 1/9. L'Armee de l'Air. 1961.
- F-104J/DJ Starfighter. Jap. ASDP. choice from either 202/3/4/5/6 Sqn. Phantom FG.1. 892 Sqn. FAA. 1977. either XV567 '002' or XV568 '003' can be modelled both with 'Silver Jubilee' markings. W. Lynx. Dutch Naval Air Service. 1977. AD4-N Skyraider. choice from Esc. 1/20. Esc 1/21. Esc 2/20. L'Armee de l'Air.
- 'Greenham Common 1977 (1)'. Lightning F3 XP764 or XR720. or F6 XR754. all 11 Sqn. RAF. Mirage F1C. E.C. 1/12. L'Armee de l'Air. F-5A(G) 336 Sqn. 'Jokers' R. Norwegian A/F. four alternatives. Sea King HAS 50. 817 Sqn. Royal Australian Navy. Hawk T1 XX164 or XX165. C.F.S. RAF.

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| Junkers JU-188           | £2.30 |  |
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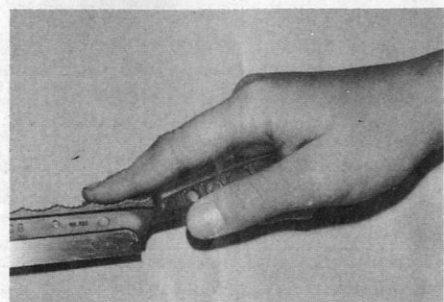
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wagon. This latest release seems to use the same chassis parts, and depicts the wood covered ambulance as used by the German Army. Moulded in earth colour, it is an extremely well produced kit, right down to the fine graining in the wood. Two horses and two poncho-clad drivers are included, plus forage bags and much more in the way of clutter. We have no references on this vehicle, but it certainly looks very accurate against photographs. Esci describe the colour for the body as 'tan' which is really, we think, the dark earth which was applied overall to a great deal of German second-line transport, despite popular belief that grey was universally used. If you are mainly a modeller of AFVs don't overlook this fine kit for it can find its place in any German diorama and was quite a common vehicle in its day. C.E.

#### Roco: Razor-saw, UK £1.50

Roco really produced this handy tool as an accessory in their railway range, but it is worth looking for since it is a decidedly superior type of razor-saw with a very good handle and grip which sits comfortably and firmly in the palm. The saw blade itself is very similar in style to the familiar X-acto



type. Actually the black plastic handle is not always an asset for it sometimes restricts the places where the saw-blade can go (through narrow gaps, for instance), but on the other hand we found this a delightful and precise saw to use for general cutting work and certainly commend it as an addition to your tool set. Roco railway stockists will have it. C.E.

#### Tamiya: Acrylic paint, 40p each

Acrylic paints are not new, for other makers have previously produced ranges for modellers, notably in the model railway field, while art shops have sold general paints of this type, mostly in tube form, for many years. However, Tamiya have now come along with a very fine range of bottled paints formulated specially for plastic models and in all the most needed shades. Thus there are 45 matt shades, including flesh, olive green, black, Japanese World War 2 camouflage colours, plus the most common US, British and German shades of the 1939-45 era — even matt aluminium. There are 11 gloss colours, also, for use on cars and trucks and so on, and these are merely random shades of red, yellow, etc. There is also a special thinner and a matting agent to flatten the gloss colours. These paints are thinner than the tube variety sold in art shops. The consistency is about the same as that of fresh plastic enamels. For spray painting Tamiya commend the addition of 15% thinners. We tried these on scrap plastic and found they worked admirably. For covering large areas we did not find them quite so re-assuring to use as ordinary plastic enamels, but on the other hand application is easy. They proved particularly nice to use on small areas — for example

painting faces, applying mottled camouflage, and the like. The real beauty of these paints, however, is the ease with which they can be mixed. As they are water-soluble until they set, these paints and the brushes can be cleaned very easily with nothing more than water. Tamiya stockists should have the full range and it is worth looking at for some of the matt shades are very handy. C.E.

#### Heller: Kawasaki Z1000, 1:8 scale, UK £10.75

The picture on the box first gives the impression that the model is of a high quality which one has come to expect from model makers and Heller in particular, and in opening the box you will not be disappointed.

The model comes in six colours; each part is clearly moulded with a large amount of detail and with little flash. Although the model contains all the required colours, it is impossible to make the model without wanting to paint it, as much of it looks very 'plastic'. The instruction sheet is detailed with diagrams that can be easily followed. The decals are few, but are of a good quality that do not disappoint and they finish a great model that any modeller would be proud of it. A. G.

#### Revell: SR 71, 1:72 scale, UK £3.25

The 2,000mph 'Blackbird' SR 71 of the USAF is the most recent Revell aircraft release to reach us, and it makes up into a large and impressive model, around 19 inches long in 1:72 scale which gives a really good impression of just how big this dramatic aircraft is. Despite its large size, however, the model has relatively few parts, most of them big. Assembly is perfectly straightforward and we found that all parts fitted well with scarcely any flash to worry about. A beginner will have no trouble. As with most long fuselages, however, we found a tendency for the fuselage halves to bow apart towards the front while the cement was setting, but this can be overcome by binding it tightly with clear tape while the glue sets. As the fuselage shape is rather 'squashed', the fuselage is split horizontally rather than vertically. The kit is moulded throughout in black and this captures the smooth finish of the original very well. We used liquid cement for careful assembly, then painted only the detail parts, applied the markings, and sprayed the whole lot in matt varnish (Dullcote) which gave a better looking finish than we would have expected to get by brush painting in black — obviously it would be a different matter if you use an airbrush. The outline appears to be com-

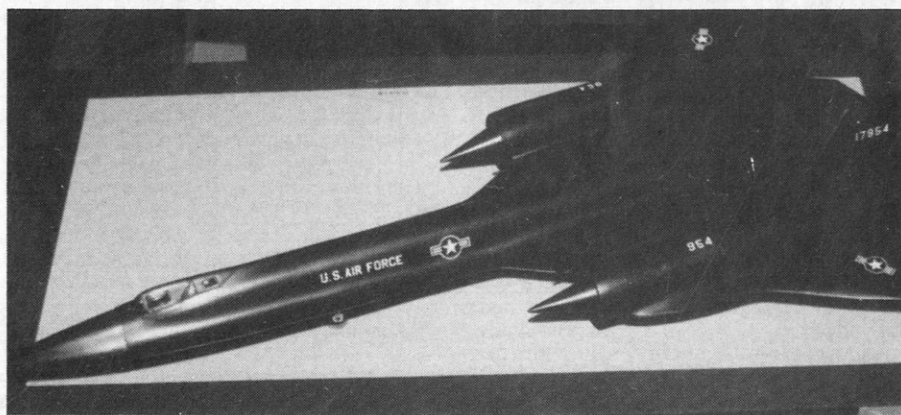
mendably accurate, at least by comparison to pictures, and the sleek sinister character of the original is captured to perfection. It is certainly a model worth having if you collect modern jets. C.E.

#### Esci: US soldiers, 1:76 scale, UK 85p

Though Airfix OO/HO figures have been available for more than twenty years, some of the sets have been scarce lately. Esci have come to the rescue with a new 'up to the minute' set of US Army infantry of World War 2. The set is called 'Big Red One', presumably for extra sales appeal, and the box artwork shows the soldiers with 1st Division sleeve badges. There are 50 pieces in the set, all in a single sprue, and moulded in soft plastic similar to that used for the Airfix figures. They require coating with a PVA glue, such as Unibond, if you want to get a good surface for ordinary paints. Alternatively scrub the figures in soapy water (as the box instructions suggest) before painting. Ordinary plastic paint used directly on this soft plastic rubs off quite quickly. The figure sculpting is good, though the anatomy is a little more reminiscent of wiry Italians than husky Americans in some cases! Some figures are depicted in the M1943 combat dress, others in the 1941 style wool dress with high leggings. Though there may be some discrepancies if every item of equipment was examined under a magnifying glass, the overall effect is certainly accurate. All men are wearing helmets, some with covers. The weapons are depicted with accuracy and include the BAR, carbine, rifle, rocket launcher, .30 MG (both air-cooled and water-cooled forms), mortars, pistols, and flamethrowers. The animation is very good, notably with the mortar crews in action positions (hand over ears, etc), and with the various machine gun crews. Flash is almost non-existent, which will please those with memories of trying to remove flash from small OO/HO figures in years past! It would have been useful to have had a couple of officer/NCO figures with binoculars, etc, to act as machine gun team commanders, rather than the men provided who wave Browning pistols in the air in the usual way, but we can't expect everything.

All in all this is a very nice set for anyone wanting wargames or diorama figures in the cheap. The figures in M1943 dress with helmet covers might make Argentinians for those making up Falkland Islands dioramas, and the figures as a whole could be used for any army using American style equipment and uniforms — for example French 2nd Amd Div in 1944-45. Our sample set came from Humbrol, who are the UK distributors for the Esci range.

A.G.—Alastair Goodale; C.E.—Chris Ellis



## Post Box

Letters and photographs from readers selected for publication will entitle the sender to receive a free kit of his choice from Airfix Series 1, 2, or 3 (subject to availability).

#### RAF film wanted

The Royal Air Force Museum, in association with Transvideo Productions Ltd, an independent television production company, has decided to produce a series of 60 minute television programmes based on the history of military aviation. The Museum archive already holds a unique collection of film which will be utilised along with footage from other usual agencies. However, in order to ensure that the best possible product is produced, we are seeking any further footage that may be available but hitherto unseen. World War 2 material is particularly, but not solely, sought. Aircraft of all nations are of interest.

Any documentary series needs an immense amount of research and planning; at this stage we know that an historically accurate and visually appealing series of programmes is possible but we do not want to miss any avenue that may be open to us. If you have any aviation film footage covering the period 1914 to 1950, of whatever type, we would very much like to view it for possible inclusion in what we hope will be a definitive and important military documentary series.

All letters to the undersigned will be gratefully acknowledged.

Dr John Tanner, CBE,  
Director,  
RAF Museum, Hendon,  
London NW9 5LL.

#### Disagreement

I am writing in response to Herr Hans Tranner's letter which appeared in Post Box, April issue, in connection with the markings of the Jasta 10 and the Pfalz D.III 1370/17.

(1) The Jasta 10 colour was yellow which was used prior to its incorporation into Jagdgeschwader I on 26 June 1917. A good reference is *Jagd in Flanders Himmel*.

(2) Reference G93, Pfalz D.IIIa by Paul S. Leaman, taken from reports on IWM and fabric samples. G.93 WO/1495 D1116/17. Brought down by Lt Thomson 46 Sqn, 30 November 1917.

Surface 1 is of aluminium dope (presumed to be entire A/C except for the tail). Finish was dense. Surface 2 is yellow 3AB chrome yellow 4Y02/13.2. This aircraft was flown by Lt Friedrich Demant from Jasta 10. Ref *Jagd in Flanders Himmel* page 165 and *Cross & Cockade Journal* (USA) Vol 10, No 2, Summer 1968, page 159.

Pfalz D111 1370/17, G.110. V2FW

Hecht, Jasta 10.

- a) Ref: *Jagd in Flanders Himmel* page 166.
- b) Ref: *Cross & Cockade* (USA) Vol 10, No 2. Page 160 and page 179.
- c) Ref: *Cross & Cockade* (USA) Vol 2, No 3. Page 224 and cover.
- d) Ref: *Cross & Cockade* (USA) Vol 1, No 4. Pages 28-546.
- e) Ref: *Scale Models Magazine*, Nov 1976. Page 546.

(3) In analysing all the photographs which appear in the above references it appears that the tonal value for the area between the fuselage bands is the same on the aft and fore portions of the fuselage. The white on the cockade is also lighter than the area between the bands. Therefore the area between the bands is aluminium paint as is the rest of the fuselage, except for the nose and tail portions.

(4) The tonal value of the fuselages are lighter than the fuselage stencilling. Ref b and e above and over and ref d on page 28.

(5) Tail Group Colours. The statement identifies that the flight report is based on Pfalz D.III 1370/17. The last paragraph of page 52 ref d says 'In the Pfalz under review, no attempt appears to have been made to camouflage the machine which is painted with aluminium paint all over its body and wings, the rudder tailplane and elevator are painted a dark yellow. It is not painted green as claimed by Herr Trauner.'

#### Conclusion

Pfalz D.III 1370/17 was painted aluminium all over, with the nose, wheel covers, all struts, fin rudder, stabilizer and elevator painted chrome yellow as defined on Lt. Friedrich Demant's Pfalz D.III shot down on 30 November 1917. The fuselage bands and wing stripe, I feel are also chrome yellow. There are other Pfalz D.III aircraft similarly marked where the stripes or bands and/or dumbbells match the nose and tail grey valves as well as wing stripe(s).

I would like to thank Peter Cooksley for his great work which I look forward to every month. Finally is there anyone who has a copy of the Ministry of Munitions report on Pfalz D.III 1370/17 G.IIO as I would like to read it? Keep up the good work of the magazine.

D. S. Abbott,  
2034 W. Chandler Av.,  
Santa Ana,  
Calif. 92704 USA.

There is plenty of material for further investigation here — meanwhile it is an interesting theory based on a most scholarly array of evidence. Peter G. Cooksley.

#### Veeday problems—1

Your comments regarding Veeday Models in your June 1982 issue have prompted me to respond by giving you the current state of play on my case. I originally wrote to you in December, as a result of which you stirred Veeday into sending part of my order with a promise to send the rest.

I originally ordered two double kits and one single kit from Veeday on 10 Oct. 1981. My cheque was cashed on 22 Oct. The Yak 15 kit eventually came just before Christmas, after you intervened on my behalf.

I have since written to Veeday several times, the last time about six weeks ago. At that time I even sent them a stamped addressed envelope, but even that failed to obtain a response. I also offered to accept alternative kits or a refund, incidentally.

I'm afraid that my last letter to Veeday was less polite than I would have wished, I

queried their right to continue advertising and requested an immediate reply.

It now appears unlikely that any satisfactory reply will be received. I doubt if any legal action would succeed, but I intend to seek advice. Whatever the outcome, even if their kits were to become first class, I would never deal with them in the future.

William Anderson, Henlow, Beds.

#### Veeday problems—2

In your editorial for June 1982 you felt obliged to warn your readers of the dangers of placing orders with Veeday Models, which is obviously the result of widespread concern by your correspondents. I am not in a position to refute any of your comments, but would like to tell you of my own experiences with this firm.

At various times I have acquired from them kits of the Hansa Brandenburg, Cierva C30A, Pfalz DIII, Albatros DXI, Gloster Gamecock, Fairey Flycatcher and BE2. Deliveries of some orders were certainly protracted, but the parts, when assembled, do present remarkably effective models, quite unexpectedly after one's first examination of the rough and unprepossessing collection of white plastic parts. As you have yourself remarked, three-view drawings and decal sheets are very good and do clearly indicate that Veeday are enthusiasts and do understand the subject of their models.

Following the move to Ireland I found the prospect of a Sopwith Dolphin irresistible and so ordered the Dolphin/Pfalz DXII kit. After some time I received the long letter of woe, which made me laugh and a little later my money back, although I was prepared to await delivery for some considerable time. Subsequently, a few weeks ago I received the kit, quite unannounced and without re-ordering. I have since mailed another cheque to them.

I believe that they have had serious problems and must agree that they are not very business-like, but for my part I have been treated honestly and fairly. If any small firm is going to produce gap-filling models like the Gamecock, which in addition I have converted into a very presentable little Grebe, then I for one will put up with quite a lot of inconvenience. These two models almost complete my collection of RAF fighters. A Woodcock please, Veeday Models, and all will be forgiven.

Ron Outhwaite, Repton, Derby

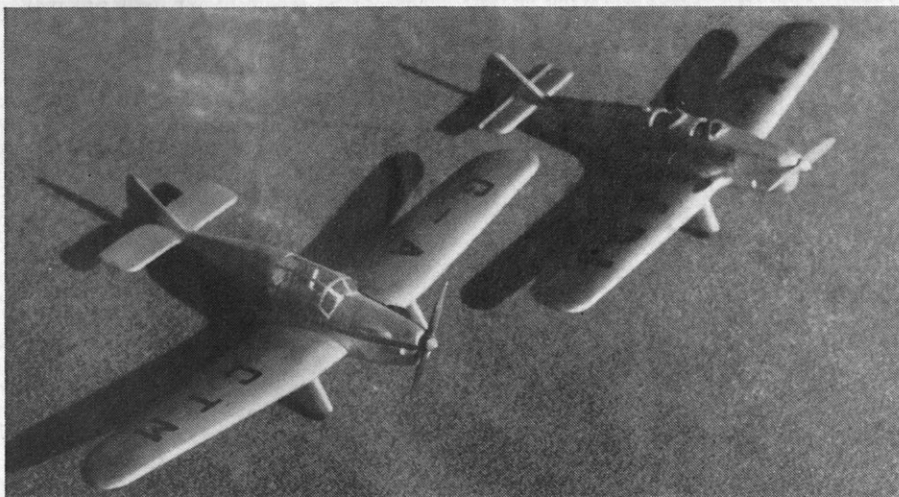
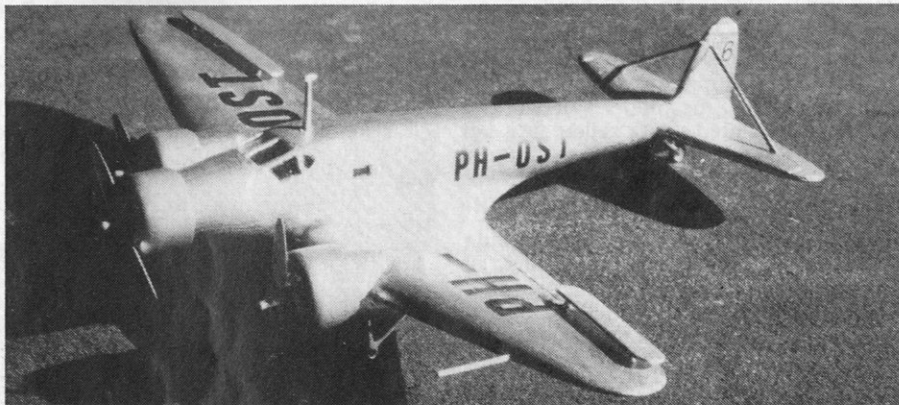
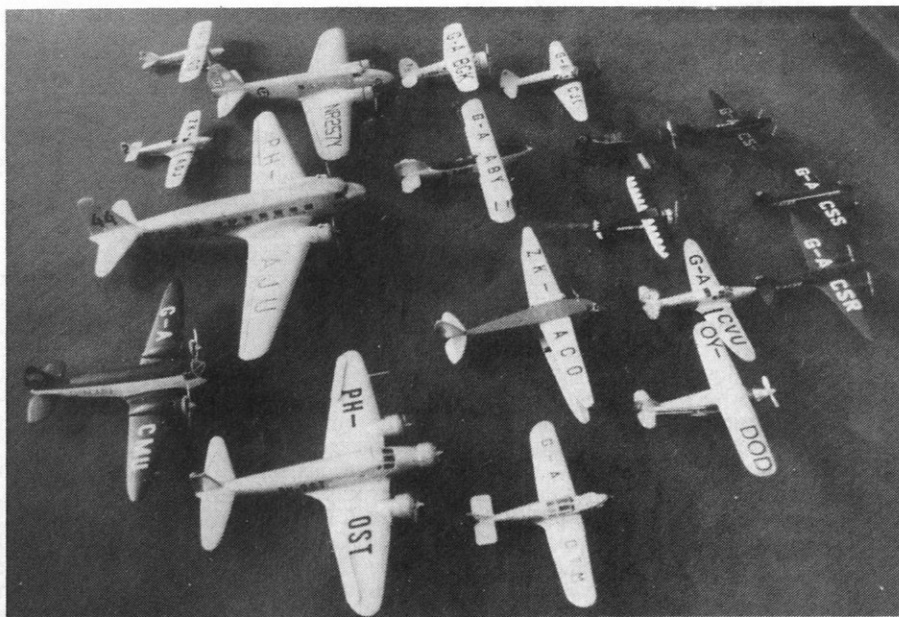
Numerous readers wrote to us following our comments in the June issue, and these two letters are representative of general feeling. I quite agree that the Veeday kits make remarkably good models, and more's the pity that the firm cannot be more business-like so that everyone could actually enjoy making them! The opportunity is certainly there for filling the gaps left by the big kit manufacturers. Editor.

#### Avro 504K

I note, on page 449 of the May 1982 issue, that in printing the comments which were contained in my letter to you with regard to the article denominated 'Build the Avro 504K Night Fighter' contained in the May 1981 issue, you have headed the item 'Avro 504N', and have also implied, in the first line, that I referred to an article on modelling the Avro 504N.

This is not correct, for nowhere in my letter do I refer to the 504N. I referred exclusively to the Avro 504K, and in fact I cannot find an article on the modelling of the 504N anywhere within the issue of May





Top: The 1934 MacRobertson London-Melbourne Air Race contestants portrayed in 1:72 scale. If you turn to page 112 of the November 1981 issue you can identify all these machines (David Money). Centre: The Pander S4, flown by Hansen and Jensen, scratch-built for the 1:72 scale collections. Above: G-ACTM was a Miles Falcon flown by Brook and Lay, and ZK-ADJ was a Miles Hawk Major which became a non-starter.

1981.

I shall be grateful if you will acknowledge this error in the *Airfix Magazine*, sometime in the near future.

A. W. G. English, Swaffham, Norfolk  
Cuckoo colours

With reference to the picture of the Sopwith Cuckoo on page 333 of the March 1982 *Airfix Magazine* and the 'unusual finish', I think the answer may be in a remark contained in *The History of the Development of Torpedo Aircraft* an official publication by the Aircraft Armament Torpedo Section. Published in February

1919 there is a note on page 57 under the title 'Camouflage' to the effect that '... Experiments are in progress with regard to this, and future machines will be coloured a dead grey all over. The usual white band in the recognition markings will be grey'.

Harry Woodman, London SW14

#### Melbourne Air Race

We were most interested in your November 1981 editorial. As you rightly point out, available kits of the Melbourne Centenary Air Race entrants are pretty thin on the ground.

The Wellington branch of the Aviation

Historical Society of New Zealand organised a display for the 40th anniversary of the race and included 1:72 models of ten of the starters. We've been plugging away since then (with the 50th anniversary in mind) and the photos show progress to date.

We have eighteen (of twenty) starters completed. The two Fairy Foxes are under construction. We are also building as many of the 44 non-starters as time and research allow. The Bf 108 (Race No 1), Lockheed Altair (No 28) and Bellanca (No 29) are finished and appear in a couple of the enclosed photos.

Our sights are also set on the Vultee VI, Savoia-Marchetti SM 79, Short Scion, Vance Viking, Northrop Delta, Everson Mono, Lockheed Orion and Airspeed Envoy.

I would be grateful for any three-views of the Wibault 366, Cessna AW, Potez 39 and Caudron C.530 if any reader can supply these, so that we can model these as well.

J. W. Best, 12 Westminster Road,  
Wainuiomata, New Zealand

### Roland DII from p.591

markings that were confined to simple shapes or plain individual letters although fuselage bands, either white or black were in evidence. The domed spinners did, however, lend themselves to being picked out in colour although this was never more than a single shade, very occasionally with a personal insignia at its centre. Behind this the metal cowl hand with its louvred slots for cooling was also a natural component to receive colour, so that if the hue of the spinner was not carried back to include this it might be finished in a contrasting shade.

Whereas the two-seat Roland had been dubbed the *Walffische* or whale, the slimmer machine was to be termed the *Haifisch* (Shark). This was perhaps the better term for a fighting aeroplane, and was obviously inspired by the unusual appearance of the fuselage. One uncommon feature of this in prototype form was the small sliding panel that was fitted below the cockpit on either side. It was obviously useful for improved view and was sufficiently large to admit a man—very useful as a means of escape in on emergency. Whatever the truth of the matter it did not appear on any of the production versions and one is tempted to wonder if its deletion had something to do with the reputation the whole structure had for warping under conditions of humidity; certainly if this is true then the riggers must have been constantly kept busy in view of the fact that the fin and rubber post were no more than extensions of the peculiar termination of the fuselage in a vertical knife edge.

As is usual amongst all military aircraft a number of small changes crept in, and one of these was the appearance of rear view mirrors forward of the cockpit edge or occasionally fixed directly to the trailing edge of the wing centre section.

No modelling feature on the Roland DII, simply because the aircraft cannot be converted from existing kits. If you want one you'll have to scratch-build! Editor.

### New Books from p.589

ings, and model pictures. It is probably the only very comprehensive volume on the period to be readily available, at least as far as equipment and military organisation is concerned. Therefore it will be of value to all interested in the period, not just wargamers. The contents are nicely split up to make particular countries easy to look up, and overall the book is a very successful work in putting over quite simply what is actually a most complex and involved period of military history.

**American Aircraft of World War 2 in Colour**, by Kenneth Munson. Blandford Press, Link House, West Street, Poole, Dorset. £9.95.

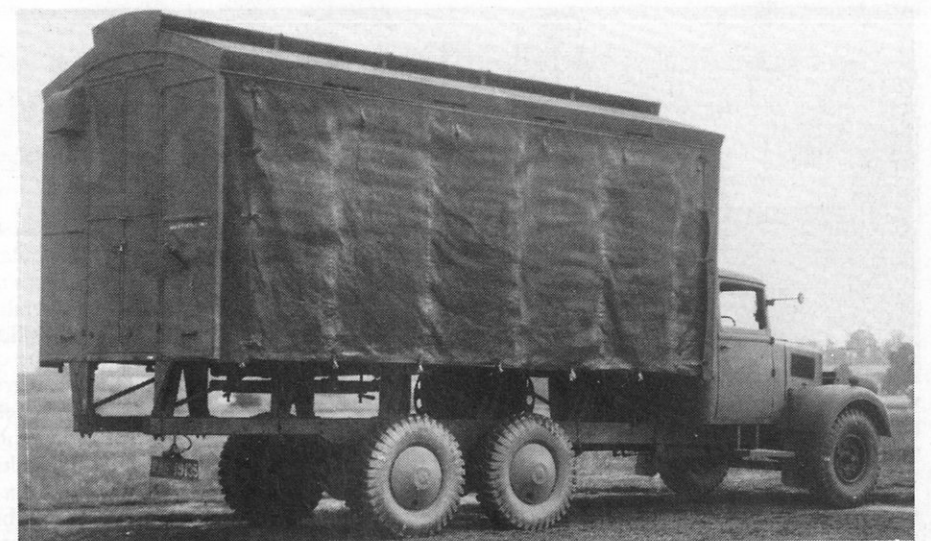
This is a popular guide to US aircraft types, done in a larger format than the same publisher's well-known 'pocket' series. There is a page of colour patches (printed, not swatches) which do a fair job in indicating all the standard US colours, while the illustrations themselves are a mixture of World War 2 colour and half-tone pictures, three-view or side-view artwork, and action paintings. This makes rather a disjointed style for some aircraft are illustrated more thoroughly or clearly than others, but nonetheless all the basic information is there for those who want an easy-to-understand single volume book on the subject. We feel that more consideration to the presentation would have made it an even better book, however.

**German Jet Genesis**, by David Masters. Janes Publishing Co, 238 City Road, London EC1. £8.95.

To the average enthusiast there will probably be a good deal of interesting new material in this book. For despite the many books on the Luftwaffe which have appeared over the years they have concentrated mainly on the jet aircraft which saw service and production. But there were many more which existed either in project or mock-up form, some no more than outline proposals. In addition there were several pioneer jet types which are not well-known. This book rounds up just about everything, some practical, others quite fanciful (but projects nevertheless) and describes and, in most cases, illustrates everything in alphabetical order. So if you want to see what a Junkers EF010 or a Horten Ho XVIII looked like you'll find them in this book. What might have happened, had the war run on until 1947 or 1948 is shown graphically on the front cover where a fine painting shows RAF Meteors and Vampires engaging an incoming raid by Junkers 287 jet bombers escorted by Messerschmitt P1101 jet fighters—a sort of jet age version of the Battle of Britain!

**Famous Airplanes No 131, A-7 Corsair. Koku-Fan Magazine**. Both available from Albion Scott, Bercourt House, York Road, Brentford, Middx TW8 0QP. £1.75/£2.95.

First of these two publications is the latest in the *Koku-Fan* series and it deals with the US Navy versions of the A-7 Corsair. Masses of pictures and drawings give very comprehensive coverage indeed, including good colour views, and all superbly printed. Some captions and headings are in English but the bulk of the text is only in Japanese. *Koku-Fan* itself is the leading Japanese aviation enthusiast's magazine, and our sample was the May 1982 edition.



Here's a chance for readers to help solve a mystery. Mike Conniford found this Ford WOT-1 picture when preparing his recent book on the subject. But what did the RAF use it for? The only clues are the date, 1940, the maker of the body, Carbodies Ltd, and a cryptic note which looks like 'hooking body'. The filler pipe on the body rear is marked 'Use MT petrol only'.

It includes a big colour feature on current RAF aircraft types and has a section in English giving some articles and reviews. The bulk of the journal is in Japanese, however, but it has excellent illustrations which are the basis of its appeal to readers who cannot read Japanese.

**Modern Submarines**, by David Miller. Salamander Books, Salamander House, 27 Old Gloucester Street, London WC1. £3.95. Latest release in Salamander's expanding 'illustrated guide' series, this is a timely book in popular style which illustrates and describes virtually all modern submarine classes from around the world. Certainly nothing of importance is omitted. Colour pictures are extensively used, weapons systems are well described, and the contents are neatly presented. This book comes over more pleasingly than some previous titles in this series, mainly we think because spreads go across the harsh binding of the spine better with submarines than they do with aircraft side views.

**Aviation Enthusiasts' Guide to London and the South-East**, by Peter G. Cooksley. Patrick Stephens Ltd, Bar Hill, Cambridge, CB3 8EL. £8.95.

Our readers will instantly recognise the name of Peter Cooksley, the author of this new book as he is a regular contributor to these columns. Like all of his work this new publication has been carefully researched and compiled into a fascinating account of the history of aviation in London and the surrounding area. The past is brought alive by the sight of buildings and statues dotted around the city, all of which have their own special story to tell. If you have ever wondered what that strange looking monument was, you can now carry Peter Cooksley's guide around and find out.

**Armour of the Korean War 1950-53**, by Simon Dunstan. Osprey Publishing Ltd, 12-14 Long Acre, London, WC2. £3.50. Simon Dunstan is an interesting writer who has a flair for picking out stories recounted about fighting and the use of machines that add to his own descriptions of equipment, etc, without detracting from the text. For example, 'One problem I had with the ROKs was that they were fond of drinking petrol (I always wondered why the petrol

level was going down so fast, which entailed problems of replenishment). Now we know why some of those vehicles that he talks about were stranded! Photographs are good with a centre spread of colour illustrations which are useful for modelling information. There are no specification tables or plans of individual tanks, instead it concentrates on the story of the type of armour that was used in the Korean conflict and the sort of men that were responsible for it. Also just produced in the same series is *The 6th Panzer Division 1937-45*, by Oberst Helmut Ritgen. Based on the same format as the above, this particular publication will be of special interest to those of you who are interested in original photographs as the centre spread is filled entirely with the author's own wartime collection. A pity that there isn't more of it.

**An Illustrated Guide to USAF**, by Bill Gunston. Salamander Books Ltd, Salamander House, 27 Old Gloucester Street, London WC1N 3AF. £3.95.

Readers will already be familiar with these popular easy to handle guide books and do not need any introduction. The Falklands action has brought everyone's attention around to the thorny question of defence and the money that should be spent on it, none more so than the United States where defence cuts have meant that several major programmes will have to disappear. Therefore it is interesting to look at the aircraft in use today and surmise how long they will remain in that position and how effective they really are. With the latest facts and figures at your fingertips and nicely illustrated throughout, this is a useful guide to the US Air Force as it can be seen today. In the same series comes *The World's Civil Airliners*, by William Green and Gordon Swanborough. Only the price is different, increased to £4.95 due to the larger size. With Freddie Laker's airline going bust and more and more staff being laid off, the future looks rather grim for some airline companies. It could even happen that the companies mentioned in this new book will not be around if and when the book is reprinted. Arranged alphabetically the book also lists examples of the aircraft used by the airlines. Information that can easily be found elsewhere but nevertheless, is particularly useful if you want everything at your fingertips.





Yet another picture from the 1:72 scale 1934 London-Melbourne Air Race collection shows the KLM DC-2 (converted from an Airfix DC-3) which made a big impact when it did so well in the race (Ron Brazier).

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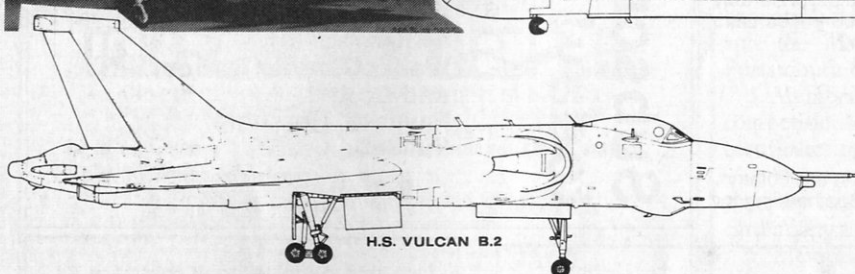
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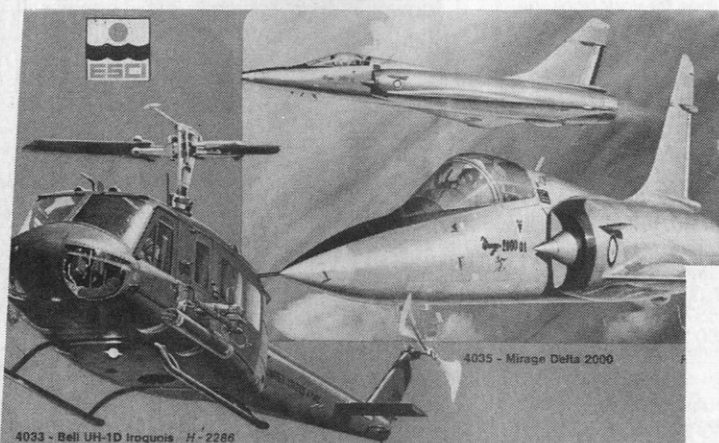


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| 4018 Saab AJ-37 Viggen         | £3.70 |
| 4019 Fiesler Fi-156 Storch     | £3.18 |
| 4020 Mig-27 Flogger D          | £3.70 |
| 4021 A-4E/F Skyhawk            | £3.18 |
| 4022 Mig-23S Flogger           | £3.70 |
| 4023 M/Saulnier 500-502        |       |
| Cricquet                       | £3.18 |
| 4024 A-4 Skyhawk-Blue Angels   | £3.18 |
| 4025 Aircraft Support Group    | £2.57 |
| 4026 AMD-BA Alpha Jet          | £3.18 |
| 4027 Fiat G91 R1/R3            | £3.18 |
| 4028 G91 PAN Freccia Tricolori | £3.18 |
| 4029 Augusta Bell AB 205       | £3.18 |
| 4030 Mirage III E Delta        | £3.18 |
| 4031 Northrop F5E Tiger II     | £3.18 |
| 4032 Mirage V                  | £3.18 |
| 4033 UH-1D Iroquois            | £3.18 |
| 4034 Jaguar GR1                | £3.18 |
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| 4036 AMD-BA Sepecat Jaguar A   | £3.18 |
| 4037 AB205 UN Rescue H/Copter  | £3.18 |
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| 4039 F86 Sabre "USAF Fighter"  | £3.18 |
| 4040 AD6 "Able Dog"            | £4.00 |
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| 4042 N.A.FJ 2/3 Fury           | £3.18 |
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| 4044 F4C/D "Mig Killer"        | £4.00 |
| 4045 Douglas A1-H Skyraider    | £4.00 |
| 4046 AD-4W "Fleet Eye"         | £4.00 |
| 4047 I.A.F. Mirage IIIC/CJ/CZ  | £3.18 |
| 4048 F5-E Swiss                | £3.18 |

## BADGER

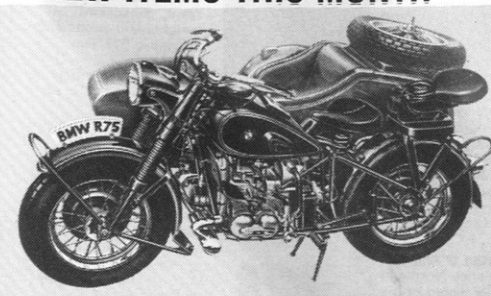
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| 100-1-XF Ultra Fine Line Air-Brush   | £70.00  |
| 100-2-IL Ultra Fine Line Air-Brush   | £70.00  |
| 100-3-GXF Ultra Fine Line Air-Brush  | £68.50  |
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| 150-4-PK Professional Air-Brush Set includes three head assemblies and needles, XF-IL-HD | £75.00  |
| 200-1 I.L. Air-Brush   | £33.00  |
| 200-2-HD H.D. Air-Brush  | £33.00  |
| 200-3 Air-Brush Set  | £38.00  |
| 200-5-EX Air-Brush Set   | £36.00  |
| 200-6 Air-Brush Set  | £32.30  |
| 350-IF Fine Air-Brush  | £18.75  |
| 350-IM Medium Air-Brush  | £18.75  |
| 350-IH Heavy Duty Air-Brush  | £18.75  |
| 350-2 Air-Brush Set  | £25.00  |
| 350-3 Air-Brush Set  | £28.75  |
| 250-1 Basic Spray Gun Set  | £9.50   |
| 250-3 Mini Spray Gun Set   | £10.00  |
| 400 Detail/Touch-up Gun  | £49.50  |
| Low Tack Film Sheets 6 x A4 size   | £1.70   |
| Low Tack Film Rolls 33 cm x 3 mtrs.  | £2.55   |
| BA-500 Kangaroo and Craft Guide Book   | £2.20   |
| BA-510 Air-Brush Technique Complete Painting Complete Customising                        | £5.25   |
| M-30 30oz Can Moga-mair  | £3.15   |
| M-20 20oz Can Moga-mair  | £2.15   |
| M-12 12oz Can Moga-mair  | £1.30   |
| 50-057 CO2 Regulator   | £35.38  |
| 50-051 Air Filter  | £15.30  |
| 50-052 Filter/Regulator & Gauge  | £21.50  |
| 50-054 Air Regulator   | £3.50   |
| 50-023 1/4" Adaptor (Compressor to Badger Hose)  | £1.50   |
| 50-029 Tyre Adaptor  | £0.65   |
| 180-1 Air Compressor   | £75.00  |
| 180-1-FS Air Compressor c/w Footswitch   | £79.60  |
| 180-11 Automatic Air Com-pressor   | £110.00 |
| 180-22 Air Compressor Tank Mounted   | £120.00 |
| 180-4 Tank Mounted Air Compressor  | £330.00 |
| Atro Air Compressor (4 Brushes)  | £390.00 |
| MI 624 Footswitch  | £7.50   |
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| 50-307 Jar Cover   | £2.40   |
| 50-0052 1oz Jar with lid   | £0.20   |
| 50-0053 2oz Jar with lid   | £0.35   |
| MS-2 4oz Jar with lid (250-4 only)   | £0.35   |
| 50-047 1/6oz Colour Cup  | £3.50   |
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| 50-2015 In-Line Air Filter   | £6.00   |
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| 1/72 scale:                     |       |
| 101 JU.52 Transport             | £2.12 |
| 104 MOT Gigant                  | £7.24 |
| 105 Do.217 K.1                  | £1.70 |
| 107 F.84F Thunderstreak         | £1.56 |
| 108 Thunderflash                | £1.56 |
| 109 Henschel HS.126             | 86p   |
| 112 Z.501 Cant.                 | £2.12 |
| 117 Ju.188                      | £2.12 |
| 118 CG.4-A Waco                 | £2.12 |
| 119 Zwillling                   | £3.68 |
| 120 Ju.86 E2                    | £2.12 |
| 121 He.111 H-6                  | £2.12 |
| 122 Do.24                       | £2.12 |
| 123 B-25 Mitchell               | £1.70 |
| 124 MRCA Tornado                | £1.70 |
| 125 Do.21 N-1                   | £1.70 |
| 126 Ju.52 Minesweeper           | £2.12 |
| 127 C.47 Skytrain               | £2.12 |
| 128 FW.190 D-9                  | 78p   |
| 129 Mitchell H/J                | £1.70 |
| 130 F.16                        | £1.70 |
| 131 F-18 Hornet                 | £1.70 |
| 132 DC-3 Dakota                 | £2.12 |
| 133 Photo Phantom RF4 C/E II    | £1.70 |
| 134 Wild Weasel F-4G E/F II     | £1.70 |
| 135 LA.5                        | 78p   |
| 136 F5E Tiger II                | £1.70 |
| 1/35 scale:                     |       |
| 201 Water Truck                 | £3.24 |
| 202 Puma 234/2                  | £3.24 |
| 203 M-32 Recovery Vehicle       | £3.24 |
| 204 Kangaroo                    | £3.24 |
| 205 2 1/2 ton 6 x 6 Cargo Truck | £3.24 |
| GMC                             | £3.24 |
| 206 M-7 Priest                  | £3.24 |
| 207 Command Tank                | £2.56 |
| 208 Patton M-47                 | £3.88 |
| 209 Jagdpanzer Hetzer           | £2.56 |
| 210 Marder III                  | £2.56 |
| 211 Jagdpanzer Tiger/Elefant    | £3.88 |
| 212 Pzkw.38t                    | £2.56 |
| 213 M.13/40 Tank                | £2.56 |
| 215 Horch Kfz.15 Command Car    | £2.56 |
| 216 Opel Blitz "S"              | £2.76 |
| 217 Panzer IV F1, F2, G         | £3.24 |
| 219 Crusader III                | £3.24 |
| 221 Maultier                    | £3.24 |
| 222 Panzer IB                   | £2.56 |
| 223 Sturmgeschutz               | £3.24 |
| 224 Leopard I A.4               | £3.88 |
| 225 Sherman M4A1                | £3.24 |
| 226 Dodge Ambulance WC.54       | £3.24 |
| 227 Steyr Tractor RSO/1         | £3.24 |
| 228 Staff Car                   | £3.24 |
| 229 Trailers                    | £2.56 |
| 230 1 1/2 T Truck               | £3.24 |
| 231 Scout Car                   | £3.24 |
| 232 155mm Gun                   | £3.24 |
| 233 Chevrolet                   | £3.24 |
| 234 Armoured Car                | £3.24 |
| 302 Gun M.42                    | £1.30 |
| 312 Kubelwagon                  | £1.40 |
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| 314 Willys Jeep                 | £1.72 |
| 315 BMW Side Car                | £1.30 |
| 316 BMW U Zundapp               | £1.30 |
| 317 Zundapp Side Car            | £1.30 |
| 1/24 scale:                     |       |
| 701 Mercedes 540K               | £4.06 |
| 702 Bugatti Royale Type 41      | £4.06 |
| 703 Rolls Royce Phantom II      | £4.06 |
| 704 Chrysler Phaeton Imperial   | £4.06 |
| 705 Coupe Napoleon              | £4.06 |
| 751 Volvo F-12                  | £7.20 |
| 752 Volvo Globetrotter          | £7.20 |
| 753 Scania T-142H               | £7.20 |

## NEW ITEMS THIS MONTH

NEW



6003 - Forties Favourites - B.M.W. R-75 with sidecar

NEW

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|--|--------|
| ITALERI  |        |
| 1/720 scale  |        |
| "Deutschland"  | £1.70  |
| "Carl Vinson"  | £2.36  |
| 1/24 scale   |        |
| Bugatti Royale   | £4.06  |
| AIRFIX   |        |
| Brontosaurus   | £1.95  |
| 1/32 scale   |        |
| DUKES OF HAZZARD   |        |
| Boss Hogg's Hauler   | £1.95  |
| Cooter's Pick-up   | £1.95  |
| 1/600 scale  |        |
| H.M.S. King George V   | £3.21  |
| 1/72 scale   |        |
| MATCHBOX   |        |
| H.S. Sea Harrier   | 67p    |
| TAMIYA   |        |
| 1/350 scale  |        |
| "Musashi"  | £17.39 |
| STOP PRESS FROM ITALERI  |        |
| 1/24 scale   |        |
| Turbo Truck  | £7.20  |
| Chrysler Imperial Phaeton                                      | £4.06  |
| 1/24 scale   |        |
| SELECTED BOOKS   |        |
| Osprey, Men at Arms  |        |
| German Commanders of W.W.II                                    |        |
| Napoleon's German allies (S)                                   |        |
| Armies of the Carthaginian wars                                |        |
| Vanguard, No. 27   |        |
| Armour of the Korean war, 1950-53                              |        |
| All the above at   | £3.50  |
| HELLER   |        |
| 1/72 scale   |        |
| SAAB J-32 Lansen   | £2.57  |
| 1/43 scale   |        |
| Peugeot 403  | £1.26  |
| REVELL   |        |
| 1/200 scale  |        |
| Hughes HK-1 Hercules "Spruce Goose" (illustrated on this page) | £4.68  |
| MONOGRAM   |        |
| 1/32 scale   |        |
| Boss Hogg's Hauler   | £1.95  |
| Cooter's Pick-up   | £1.95  |
| 1/600 scale  |        |
| H.M.S. King George V   | £3.21  |
| 1/72 scale   |        |
| MATCHBOX   |        |
| H.S. Sea Harrier   | 67p    |
| TAMIYA   |        |
| 1/350 scale  |        |
| "Musashi"  | £17.39 |
| STOP PRESS FROM ITALERI  |        |
| 1/24 scale   |        |
| Turbo Truck  | £7.20  |
| Chrysler Imperial Phaeton                                      | £4.06  |
| 1/24 scale   |        |
| SELECTED BOOKS   |        |
| Osprey, Men at Arms  |        |
| German Commanders of W.W.II                                    |        |
| Napoleon's German allies (S)                                   |        |
| Armies of the Carthaginian wars                                |        |
| Vanguard, No. 27   |        |
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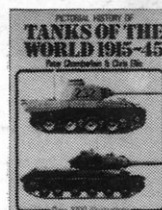
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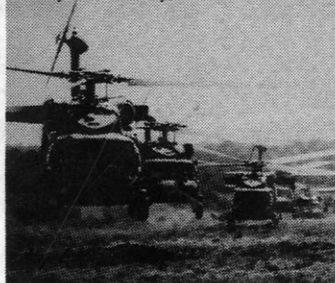


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